

VOLUME XV
1935

RML
Number 56

REVIEW OF MILITARY LITERATURE

THE COMMAND AND GENERAL STAFF SCHOOL
QUARTERLY

MAJOR FRED DURING, *Editor*
CAPTAIN G.B. GUENTHER, *Associate Editor*

FOREWORD

The object of this publication is a systematic review of current military literature, through cataloging articles of professional value, in selected military and naval periodicals, in the domestic and foreign field.

Articles from foreign periodicals are treated by translations of titles and digests of contents; material of particular importance is covered more extensively in a Section of "Abstracts of Foreign-language Articles."

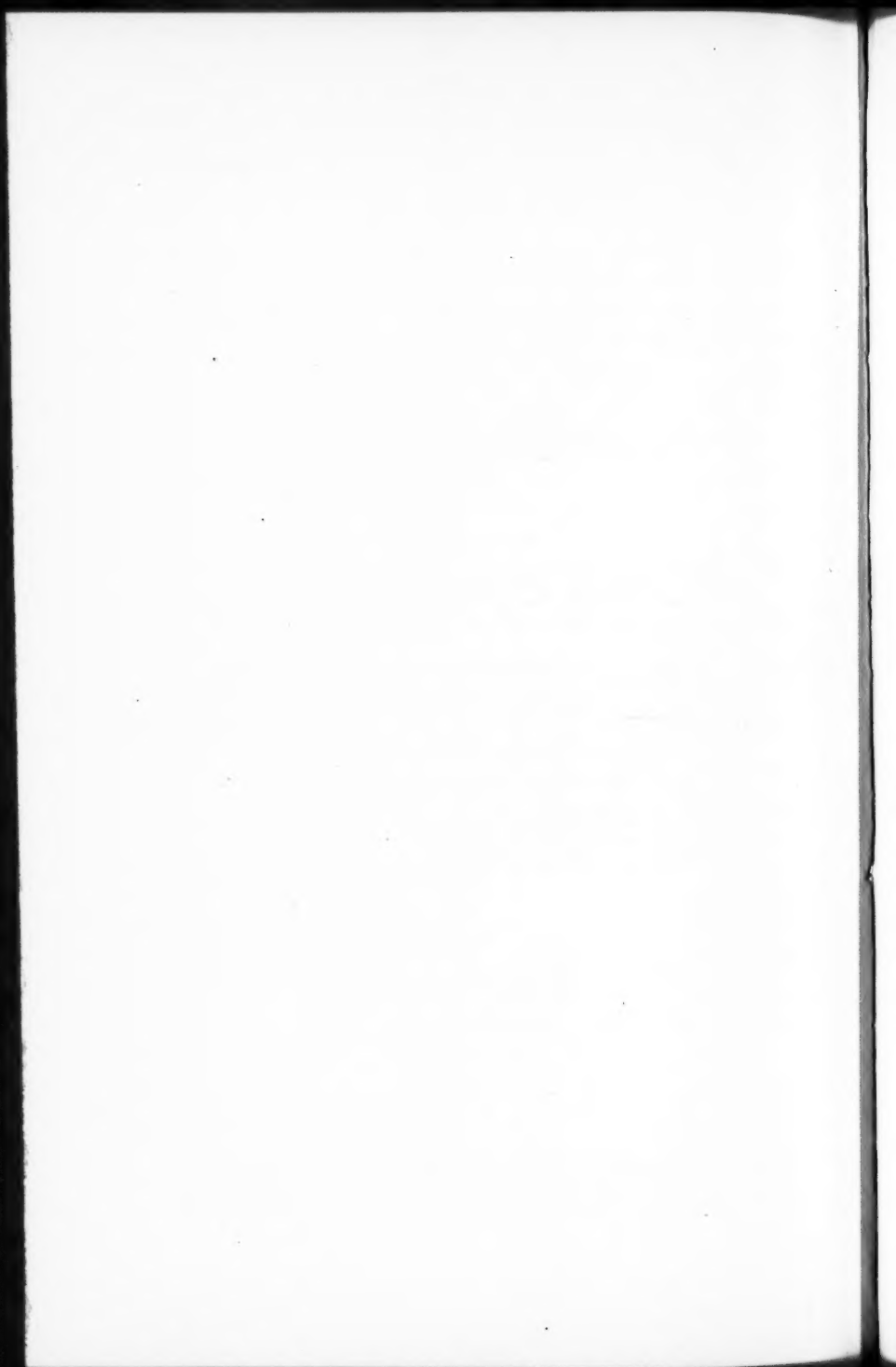
A "Book Review" Section contains reviews of outstanding books, recently accessioned, which are of particular professional significance.

This material is published as a guide to modern military tendencies and to inspire vigorous thought on the subjects treated.

The opinions expressed by authors are not necessarily official.

March, 1935
First Quarter

REVIEW OF MILITARY LITERATURE is published quarterly by Command and General Staff School at Fort Leavenworth, Kansas. Entered as second-class matter August 31, 1934 at the Post Office at Fort Leavenworth, Kansas, under the Act of March 3, 1879. Subscription rate: One year in the U.S. and possessions, Cuba and Mexico, \$1.00.



REVIEW OF MILITARY LITERATURE

Volume XV

March, 1935

Number 56

CONTENTS

	Page
Section 1—ORIGINAL MILITARY STUDIES.....	5
This Section contains original contributions by graduates of the Command and General Staff School.	
Section 2—ABSTRACTS OF FOREIGN-LANGUAGE ARTICLES.....	35
This Section contains abstracts of important articles from foreign military periodicals; the remaining articles for each magazine are listed in Section 4.	
Section 3—DIRECTORY OF PERIODICALS.....	93
A guide to Section 4 and Section 8.	
Section 4—CATALOG OF SELECTED PERIODICAL ARTICLES.....	95
A systematic review of the contents of selected military periodicals; the articles contained therein are listed in numerical sequence. In English-language magazines, only titles are quoted. Foreign-language periodicals are covered in greater detail; articles are digested to a degree to furnish an adequate idea of contents and significance.	
Section 5—ACADEMIC NOTES, C. & G.S.S.....	141
Reprint of current School memoranda, which affect instructional procedure or tactical doctrine.	
Section 6—BOOK REVIEWS.....	155
Section 7—LIBRARY BULLETIN.....	175
Section 8—READERS' GUIDE AND SUBJECT INDEX.....	181
All subject-headings are arranged in alphabetic sequence and can be consulted like a dictionary. Note also List of Periodicals Indexed and Key to Abbreviations.	

THE COMMAND AND GENERAL STAFF SCHOOL PRESS
FORT LEAVENWORTH, KANSAS

807-3 31-35-1300

LIST OF OFFICERS CONTRIBUTING TO THIS NUMBER

	A	B	C	D	E	F
(1) Briscoe, Lt.Col. N.B.	1					
(2) Bullard, Maj. P.C.	1				1	
(3) Christmas, Capt. J.K.						1
(4) During, Maj. F.	4	24	5	1	3	
(5) Greene, 1st Lieut. J.I.	1		1	1	3	
(6) Guenther, Capt. G.B.	2	2				
(7) Heidner, Maj. S.J.				1		
(8) Hoskins, Maj. F.L.					1	
(9) Lanham, 1st Lieut. C.T.	1		1	2	1	
(10) Miller, Col. T.					1	
(11) Moore, Lieut. R.E.			1			
(12) Taylor, 1st Lieut. M.D.	3					
(13) Vogel, 1st Lieut. H.D.	1					
(14) Wash, Maj. C.H.	1					
(15) Willoughby, Maj. C.A.	1					

A—Foreign-Language Periodicals; B—English-Language Periodicals;
C—Abstracts of Foreign-Language Articles; D—Foreign-Language Book
Reviews; E—English-Language Book Reviews; F—Original Studies.

Lt.Col. N.B. Briscoe: *Revue de Cavalerie* (September-October, 1934).
Maj. P.C. Bullard: *Revue du Génie Militaire* (September-October, 1934).

Maj. F. During: *Militärwissenschaftliche Mitteilungen* (July, August, September, 1934); *Militär-Wochenblatt* (4 September-25 November, 1934); *Rivista di Artiglieria e Genio* (June, July, August-September, 1934); *Wehr und Waffen* (July, August, September, 1934).

1st Lieut. J.I. Greene: *Bulletin Belge des Sciences Militaires* (July, August, September, 1934).

Capt. G.B. Guenther: *Sanct Christophorus* (July, August, September, 1934); *Wissen und Wehr* (July, August, September, 1934).

1st Lieut. C.T. Lanham: *Revue d'Infanterie* (July, August, September, 1934).

1st Lieut. M.D. Taylor: *Esercito e Nazione* (July, August-September, 1934); *Revista del Ejercito e de la Marina* (July, August, September, 1934); *Revue d'Artillerie* (July, August, September, 1934).

1st Lieut. H.D. Vogel: *Pioniere* (August, 1934).

Maj. C.H. Wash: *Revue de l'Armée de l'Air* (July, August, September, 1934).

Maj. C.A. Willoughby: *Revue Militaire Francaise* (July, August, September, 1934).

Section 1
ORIGINAL MILITARY STUDIES

This section contains original contributions by graduates of The Command and General Staff School.

**THE SUPPLY AND EVACUATION OF MECHANIZED FORCES
AS APPLIED PARTICULARLY TO THE CAVALRY
BRIGADE (MECHANIZED)**

By Captain J.K. Christmas, Ordnance Department

I.—INTRODUCTION

The term "mechanization," broadly speaking and as regards military forces, refers to any use of mechanical means to enhance the combat power and/or the mobility of troops. However, since the introduction of the tank into warfare by the British on the Somme, 15 September, 1916, the term "mechanization" has come to refer to the more limited field of multiplying the powers of troops by the use of self-propelled vehicles carrying men, weapons, armor, and other fighting equipment in various forms and to varying degrees. The War Department has adopted the following official definition of "mechanization," particularly to distinguish it from "motorization" which refers solely to the substitution of motor for animal draft in the transport and supply echelons and for furnishing strategic mobility for combat troops:

"Mechanization is the application of mechanics directly to the combat soldier on the battlefield."

Our army organized its first mechanized force in 1928 at Fort G.G. Meade, Maryland, followed by a later and better equipped force at Fort Eustis, Virginia. These forces, of all arms, were in 1930 superseded by a mechanized cavalry regiment at Fort Knox, Kentucky, looking toward the early development of a mechanized reinforced cavalry brigade. At the time that this was done the War Department ordered all arms and services to experiment with and develop mechanization in their own sphere, in the following words:

"Every arm is authorized to conduct research and experiment with a view to increasing its own power to perform promptly the missions it has been especially organized and developed

to carry out. Every part of the Army will adopt mechanization—and motorization—as far as is practicable and desirable. To the greatest extent possible machines will be used to increase the mobility, security, and striking power of every ground arm, but no separate corps will be established in the vain hope that through a utilization of machines it can absorb the missions, and duplicate the capabilities, of all others.” (*Annual Report of the Secretary of War, 1931.*)

The writer’s research in connection with this study, and to a much larger extent for 7 years prior to attending the Command and General Staff School while engaged in the development of mechanized vehicles in the Ordnance Department, indicate that while tactical development has lagged considerably behind technical development, as is necessarily the case, there has been practically no development with respect to the supply and evacuation of mechanized units. However, a considerable amount of information on this subject is available, requiring only integration and evaluation to be of value; this is particularly so, if these data are used to reason inductively and comparatively from the principles now established for the logistics of non-mechanized units. Since the World War has well established that logistics have a considerable influence on strategy and tactics, it appears highly desirable that a thorough study be made of the logistics of mechanized units in order that (1) a supply system may be developed that is suited to their tactical qualities; (2) an idea may be had of the relative logistics of mechanized and non-mechanized units; and (3) those logistic elements requiring further investigation and tests may be summarized.

There has been very little written on the supply of mechanized units but in some tactical treatises occur brief references to supply. Many writers see as the principal drawback to mechanization what they call the enormous quantities of gasoline and ammunition such a unit must have, compared to a similar non-mechanized unit. Believing that some of these statements are not based on accurate analyses, this study very carefully examines this aspect of the subject.

II.—ASSUMPTIONS

This study is based on the *Reinforced Cavalry Brigade (Mechanized)* as outlined in Table 50, *Reference Data, C. &*

G.S.S., 1933. The organization given there has been supplemented by the use of *Table of Organization 423P* (Special) for the cavalry regiment (mechanized); this table was expanded to war strength by the addition of two combat-car squadrons. As no tables of organization are available for the rest of the brigade, tables for the brigade headquarters, and other supporting and auxiliary units were taken or adapted from those available, as shown below:

Cavalry brigade (mechanized), reinforced.....	Table 50, <i>Reference Data</i> .
Brigade headquarters.....	Same headquarters and headquarters troop, regiment.
Cavalry regiment (mechanized). (See Appendix A.).....	<i>Table of Organization 423P</i> (Special) plus 2 combat-car squadrons as per T/O 427P Special.
75-mm. artillery battalion (mechanized).....	<i>Table of Organization 519½</i> . Battalion light Field Artillery, motorized. (Fast tractors or light trucks assumed substituted for slow tractors).
Engineer troop (motorized).....	Table 468W.
Chemical troop (motorized).....	Table 597-5.
Motor repair section.....	Table 412W—Ordnance Company, Light Motorized, Cavalry Division.

The *cavalry brigade (mechanized)* has been chosen for this study because (1) it is the unit now being developed in our army; (2) a cavalry unit, due to its missions away from the supply bases, is the most difficult to supply; and (3) this unit is used in instruction at the Command and General Staff School.

There being nothing *absolute* about the matter of supplying tactical units in the field, the only yardstick with which to measure the supply factors of a new unit is an old, established unit of comparable tactical value. The cavalry division, *Tables of Organization*, Table 401W, has been selected for this purpose, with certain modifications noted below. It will be remembered that the cavalry division contains the following combat units:

- 4 cavalry regiments
- 1 75-mm. regiment, horse artillery
- 1 squadron, armored cars (36 cars)
- 1 light tank company (slow, truck-transported tanks)
- 1 squadron engineers.

The following changes were made in order to get a more accurate comparison between the two units:

Medical squadron detached, as the cavalry brigade (mechanized) has no medical unit.

Add the following weapons (Memo, C. & G.S.S., 9 October, 1933, subject: Cavalry Weapons):

36 machine guns, caliber .50 (in armored-car squadron)
 36 sub-machine guns (in armored-car squadron)
 288 machine guns, caliber .30 (36 in armored cars; 192 to replace machine rifles in cavalry regiments).

Increase day of fire for small-arms ammunition, due to addition of above weapons, from 45 tons to 62.3 tons.

Since certain aspects of this study require a comparison of the supply of a mechanized and of a non-mechanized unit, it is important that a fair degree of tactical equality be established between the two units used. The tactical value of a mechanized unit being a questionable matter requiring years of research, development, and maneuvers, and even some actual combat, to determine the only fairly reliable yardstick at this time is considered to be *the relative fire-power of the two units*; this is the same general rule used at the Command and General Staff School for comparing the tactical (or combat) strength of the infantry division and the cavalry division. It is realized in applying this rule, that each type of unit, mechanized and horse, has certain advantages over the other and that these qualities are to a large extent both intangible and open to argument. However, it is believed that the normal "day of fire" is a fair index to the fire-power of a unit and therefore it may be said that the cavalry brigade (mechanized) and the cavalry division (horse) are approximately equal, their days of fire being:

	Mechanized Brigade	Cavalry Division
Small arms.....	92.8 tons	62.3 tons*
Artillery (75-mm.).....	47.5 tons	95.0 tons
TOTAL.....	140.3 tons	157.3 tons

The organization and equipment of the two units, as regards men, animals, weapons, and vehicles is summarized in Appendix B.

*Corrected for additional machine guns. See above.

III.—A DISCUSSION OF THE GENERAL LOGISTIC PRINCIPLES INVOLVED

Our *Field Service Regulations*, paragraph 583, says in part "The administration of the supply system is based on the fundamental principle that the combat troops should not have their attention diverted from the task of defeating the enemy by anxiety concerning supply and replacements. The impetus in the movement of supplies and replacements should be given *by the rear* which so organizes its services that the normal routine requirements are replaced automatically and without the preliminary of requisitions."

The *German Field Service Regulations*, 1921, in paragraph 795, discussing the various echelons of supply, state "Only when supplying large cavalry units, operating in advance of the army front, are rearward (corps and army—Author) supply columns brought forward to distributing points." (A distributing point is defined in the same paragraph as the point where division trains deliver to field trains of combat troops.)

Further, paragraphs 977 to 980 describe their system of gasoline and oil supply to motorized units by special gasoline and oil motor columns under army responsibility and control to division distributing points; further that the gasoline and oil are handled in barrels. (Except that special tank trucks called "mobile tank stations" supply *separate* motor vehicles of headquarters and troop units.)

The *French Field Service Regulations* in paragraph 251 say in part: "In any situation it is important: To push forward as closely as possible to the troop units to be supplied the matériel and subsistence supplies, which must be delivered to them, in order to reduce to the minimum the task of their own agencies of transportation."

Based on these principles, our general logistic system (as well as that of the British, French, and German) is for the higher echelons (usually the army) to be responsible for delivering supplies to combat units at railheads (usually for Class I supplies only) and depots, located on a railroad usually, if possible, just out of all enemy artillery fire and within a *reasonable round trip* by motor of the field trains of the combat units. When combat units are marching, this general rule

- depends on the condition existing in our present cavalry and infantry divisions, that the division service trains (being motorized) have a rate of march from two to four times that of the combat troops. This means that the troops can be from 1 to 2 or even 3 days' march from the railhead and still be supplied by the service trains (and by those field and combat trains which are motorized). Please note this, as it has an important bearing on the supply of a mechanized (or any wholly motorized unit) on the march away from its base.

When we come to the wholly mechanized unit, which is of course also wholly motorized, the condition discussed above no longer exists; the service and other trains have little or no advantage (and in some cases, such as with armored cars, the trains are at a disadvantage) in actual marching speed over the combat troops. It is at once apparent that in this case the combat troops cannot be supplied daily by their integral or organic trains at a distance over $\frac{1}{2}$ day's march from the railhead (or other army distributing point or depot) unless the trains contain *empty transportation* equal to 1 day of supply and of fire.

It will be of interest to note here what Fiebeger's *Elements of Strategy* says under "Communications" (page 16): "The Count de Paris in his *History of the Civil War*, deduces the conclusion, that an American army of 100,000 men equipped with 4,000 ordinary army wagons, utilizing three or four common country roads, cannot be subsisted in a barren country at a distance exceeding 25 to 30 miles from some point on a railway or navigable river. *For a greater distance the ratio of the number of wagons to the number of miles is a rapidly increasing one.*" This passage is of interest because it shows what can be expected in units having no motors; because the trains are only a little faster than the troops, the distance from the railhead can only be between 1 and 2 days' march; and even here the trains must have operated on a loop when the troops were at maximum distance from the railhead. Using a Civil War unit, our present divisions, and a mechanized unit, we can construct the following approximate table (trains marching 8 hours on round trip to railhead):

Unit	Rate of March			Ratio of Rates of March	Daily March (troops)	Maximum Distance from Railhead
	Troops	Trains run to	(which railhead)			
Civil War Division.....	2½	3½	mi./hr.	1.4	12	14 miles
Infantry Division.....	2½	14	mi./hr.	5.6	12	56 miles
Cavalry Division.....	5	14	mi./hr.	2.8	25	56 miles
Mechanized Brigade	20	20	mi./hr.	1.0	150	80 miles

We can see from this table that, with unit trains holding one day of supply, in order for the unit to be supplied more than 1 day's march from the railhead, the trains must march faster than the troops; and when the trains march at the same speed as the troops, these can only be supplied at a distance from the railhead of about ½ day's march. Any performance above this must come from (1) excessive organic trains so that 1 day of supply may be going to the troops while an empty train is going to the railhead; or (2) excess transportation (from railhead) furnished by the higher echelon. It being accepted as a principle that the higher echelon should get supplies to the combat troops, it is considered that the second method is much the better.

For example, when marching, let the unit leave the railhead area (A) (let us say at daylight) and march 150 miles (maximum daily march of mechanized brigade) to a new bivouac (B), leaving behind at the railhead empty trucks for 1 day of supply. These trucks, when loaded from the incoming daily train, march after the unit to its new bivouac (B). Here they may transfer their loads or take the place in the unit of the trucks now empty (due to a day's consumption having taken place), the latter to remain in the bivouac (B), when the unit again marches. When the railhead is opened at (B) that night, the trucks left behind are loaded and march after the unit to the new bivouac area (C), etc., and this presumes that the railheads can be advanced behind the mechanized unit at the rate of 150 miles per day, which is quite unlikely. It is considered that the reader will admit that there will be many cases where a railhead cannot be placed within 1 day's march of the brigade. Further, that due to the high speed of the brigade, it will seldom have missions lasting more than a few days away from its railhead. It would therefore appear

best to adopt these principles for the brigade trains: (1) Do not include any empty trucks; (2) carry in the brigade trains enough supplies to last several days; and (3) if a larger march away from the base is required, either (a) attach additional truck companies to the brigade, or (b) supply an advanced refilling point for the brigade by motor convoys under control of the higher echelon (say the army).

Since any train, in addition to that necessary to carry reasonable unit reserves, is uneconomical and a serious tactical disadvantage to a cavalry unit, it would appear the following conclusion may be drawn: For wholly motorized units (such as the reinforced brigade or the division) the army (or other higher unit responsible for supply) must be responsible for supply and evacuation to within $\frac{1}{2}$ day's march of the field trains (or of the combat trains if the unit have field trains and no service trains).

This does not necessarily apply, if the brigade is going on a raid or other mission lasting only a few days, as the brigade can then live on its unit reserves.

That supply convoys will be needed has been considered in Great Britain. General Fuller (British), in *Lectures on F.S.R.—III*, says in his discussion of supply of a mechanized force: "In armies largely dependent for their mobility on petrol it is obvious that the protection of convoys will become all-important, and that, consequently, special mobile line of communications protective units will have to form part of the field army."

Captain Boileau, British Army, proposes a system of endless chain motor convoys operating between the railhead and the B echelon (service trains of the mechanized unit). The writer agrees wholly with this but considers that these convoys be under army control and not attached to the mechanized brigade.

The mechanized brigade has a maximum daily march of 150 miles, which is six times that of the cavalry division and ten times that of the infantry division. It would therefore seem desirable to provide the mechanized brigade with supplies sufficient for a round trip of 300 miles plus 1 day in reserve (or a total of 3 days), with respect to fuel. Regarding rations, something more should be provided as they are *always* consumed to the maximum, while fuel consumption will be reduced

if there be delay, halts, or combat. Contrariwise, ammunition consumption varies considerably with the situation and, except for antiaircraft weapons, is not used daily on marches, so that a lesser number of days of fire than rations may be carried.

On the subjects just discussed, Captain Boileau, Royal Army Service Corps, says, regarding distance supplies must be carried: "Apart from the long distance raid, which may be scheduled separately, it does not seem probable that these would often exceed 160 miles at most . . . British armoured brigades carry 1 day of ammunition in 'A' echelon and 1½ days in 'B' echelon. (A echelon is with the troops, B echelon the brigade trains.) . . . Principle of petrol supply is that there must always be a necessary refill readily available."

The desirability of carrying as much ammunition as possible in the forward echelons of the brigade, ahead of the railhead, in order to increase the tactical power of the weapons is shown by this quotation from a book by General Harding Newman, the Director General of Transportation, British Expeditionary Force, 1918: "The lesson here is, that the more echelons of mobile ammunition there are in front of railhead, the greater the power of the gun. The railways and railheads are not the limiting factors. These are to be found in the echelons in front of railhead."

Having briefly reviewed the logistic principles involved we shall now apply them specifically to the mechanized cavalry brigade, reinforced, in order to see from actual detailed computations how much of a practical problem the supply of the brigade is. It is possible that the quantities of supply involved will be such that we must deviate from the general principles as well as from the accepted practice in non-mechanized units as to amounts carried and where carried. The computations are based on *Reference Data*, C. & G.S.S., 1933, primarily, but the days of fire, weights of packed ammunition, and other data on ordnance equipment are taken from *Ordnance Field Manual*, 1933, Volume II. Gasoline consumption data are based on actual tests made at Aberdeen Proving Ground. Data on ship tonnage required for motor vehicles taken from *The Services of Supply, a Statistical Summary*, by Major W.E. Haseltine, U.S.A., G.P.O., 1919.

IV.—SUPPLY OF THE MECHANIZED BRIGADE

1. *Class I supplies; rations:* The supply of rations is a rather small matter in the brigade because we have a unit equipped with 771 motor vehicles requiring only 5.87 tons of rations per day. The mobility of the vehicles allows them to be used over a wide area in 1 day, which lays them open to wide separation from each other, and they will often be employed singly or in small groups. It is believed *the vehicle to which a man is assigned*, rather than the troop, should be the *first echelon* in rationing. (Every man in the brigade rides on a motor vehicle.) Therefore, instead of prescribing that 1 reserve ration (carried on the man) and 1 ration on the troop kitchen be carried, it is recommended that 1 reserve ration be carried on the man (as before) plus 2 field rations "B" be carried on the vehicle for each man normally carried on that vehicle, or a total of 3 rations available *to any man anywhere* on detachment from his troop or similar unit. This would, for example, allow a section of armored cars to make a 300-mile (2-day) round trip away from its troop with an "iron" ration in reserve in case of delay or breakdown. No particular of specially difficult arrangements need be made for the carrying of these rations, except in the case of the combat cars. In these, due to the limited room in the crew compartment, it will probably be necessary to carry the rations in a special box on the outside of the car. The additional weight, per vehicle, is of course negligible. (Crew 3 men; 2 days' rations, 30 pounds.) Neglecting the "iron" ration, which is not usually considered, the brigade still needs one more ration in order to be provided with three rations as is the cavalry division.

Whenever possible, the troops are of course to mess by troop or similar units; therefore, the troop kitchens (or combat trains) must carry at least 1 ration. Again the possibility of detached service and wide separation looms up, so that the troop should be able to subsist as long as possible. It is therefore recommended that the combat train carry 2 field rations (A or B, depending on the situation); for the combat-car troop at war strength this only amounts to 740 pounds, and can be carried on the kitchen truck. In a larger unit, such as the machine-gun troop, 1 ration could be carried on a truck of the combat train.

While the brigade now has 3 rations as prescribed for the cavalry division, and one extra, it is further recommended that 1 ration be carried in the regimental (field) train; in the case of the cavalry regiment (mechanized), this ration will amount to 4,890 pounds, requiring one and one-fourth 2-ton trucks.

SUMMARY OF RATIONS TO BE CARRIED

Where Carried	Type	No.	Weight
On man.....	"Iron"	1	
On vehicle.....	B	2	5 lbs. \times number of men on vehicle
On kitchens (CTN)...	A or B	2	11.64 tons
On field train.....	A	1	5.87 tons
TOTAL.....		5	(not counting emergency or "iron" ration)

This will allow the brigade to be away from its base 5 days (discounting the iron ration) or 3 days if the same rule be applied as in other organizations, viz: that there must never be less than 2 days' rations with the troops.

The idea presented here of carrying as much Class I supply (and also ammunition, as will be discussed later) in the foremost echelon (the vehicle), is of course only possible in a wholly motorized unit. Aside from the argument, in case of combat vehicles particularly, that the vehicles may have to operate widely separated is the opportunity thus afforded to reduce appreciably the size of the trains required and/or increase the supplies carried. Two days' rations for the crew of four men, or 40 pounds, is negligible on an armored car weighing 8,000 or 9,000 pounds, but these rations lumped for the brigade in a service train aggregate 11.64 tons, requiring six 2-ton trucks.

2. *Class I supplies; gasoline and oil:* The supply of these is often considered the bugaboo of the mechanized unit, even more than ammunition, because the fuel will be needed daily in the field except when in bivouac, whereas ammunition will be needed only on the few days when there is combat. One day's supply of gasoline and oil for this brigade, predicated on a maximum daily march of 150 miles, amounts to 75.59 tons, or let us say 76 tons.

While text books give the maximum daily march as 150 miles, the maximum day marching rate is given as 14 miles

per hour, requiring 10.7 hours' marching. It is believed that the marching rate should be made 20 miles per hour, allowing the march to be completed in $7\frac{1}{2}$ hours. Since mechanized cavalry will ordinarily operate well away from other troops, there should be no road congestion requiring a slow march (with consequent reduced road space). (In 1932 a full track-laying light tank [T1E4] marched 55 miles on a concrete road at an average speed of 15 miles per hour; it is considered the mechanized brigade can easily maintain an average of 20 miles.)

The 6-wheeled armored car, M-1, carries sufficient gasoline and oil for over 200 miles, or 1 day. The various vehicles in the brigade, as now built, carry in their tanks gasoline and oil for 150 to 250 miles of running. Any vehicle can carry 1 day of gasoline in its tank, most of them carrying more and some even 2. Hence the whole brigade can carry in the vehicle tank 1 day of gasoline and oil. Applying to the gasoline question the same reasoning as in the case of the rations, viz: mechanized vehicles (particularly the combat vehicles), will, due to their great mobility and their mission being one of security, often be employed singly, in two's or in small detachments; it is therefore important to have *with each vehicle*, rather than in the combat train, as large an amount of gasoline as possible. As a result of many years' experience with the development and designing work with mechanized vehicles, the author feels safe in stating that it is impractical to carry more than about one and a fraction day of fuel and oil in tanks *integral* with the combat vehicles, the armored cars, and combat cars. This is primarily because the fuel tanks are armor protected. However, an additional day of gasoline (or the fraction necessary to make two days) can be carried *in 10-gallon drums*, carried as baggage on the outside of the vehicles. (This was done with 6-ton tanks in the Argonne in 1918, personally observed by me.) As combat is usually preceded by a march, by the time combat occurs the drums will probably be empty and can be discarded. If not empty, they can be dropped in a fuel dump (as the infantry dumps its packs) to be retrieved later. Many of the supply vehicles (trucks) can be furnished with reserve tanks holding at least a part of the second day's supply of gasoline and oil. It can thus be seen that *we should and can carry 2 days of gasoline*

on each individual vehicle for that vehicle. This is one of several excellent reasons for carrying all gasoline and oil in 10-gallon drums and not in special motor tank trucks as now is done in other organizations of our army.

Just as the vehicles are likely to be employed in small groups widely separated, so are the troops (and other similar units) of the force likely to be detached from the main body at a considerable distance and for several days. It is therefore thought desirable that the next increment of gasoline to be carried be in the troop combat train. A day of gasoline and oil for the whole brigade amounts to 76 tons, requiring thirty-eight 2-ton cargo trucks, which is the type with which the force is equipped. This would be divided into unit combat trains, as shown by the table of combat train loads, Appendix C.

The gasoline and oil provided above amounts to 3 days' supply, the same as is now prescribed for the cavalry division and 1 day more than is prescribed for the brigade in the pamphlet *Cavalry, Mechanized*. It is not considered necessary, or even highly desirable, that any additional gasoline be carried because the mechanized brigade, by its size and mission, will normally be employed with a larger non-mechanized unit such as a cavalry corps, and army corps or an army, and hence it would be most unlikely to be given a strategic, and certainly not a tactical mission, requiring a round trip away from a refilling point of more than 450 miles. (In order to realize easily the tactical and strategic significance of this distance, it is interesting to note that the Gettysburg Strategic Map, 1 inch equals 4 miles, is 121 miles wide by 137 miles high [north and south], making the greatest distance on this map 184 miles.) If, however, a longer march should be required (such as a raid or a long strategic reconnaissance), additional gasoline and oil may readily be provided by attaching to the mechanized brigade a motor train of gasoline and oil, whose trucks would return to the base as they became empty; the gasoline organically in the brigade, except that initially in the vehicle tanks, would be used only after the attached gasoline and oil column had become exhausted.

3. *Class I supplies, other:* These consist of kitchen fuel, mail, recreational supplies, sales commissary, etc., and should, except for the cooking fuel and mail, be furnished only when the brigade is in reserve, rest areas and/or within a reasonable

distance of its railhead. The gasoline needed for cooking (on gasoline-fired kitchen trucks) amounts to only 11 gallons, or 0.044 tons per day).

4. *Class II-III-IV (less ammunition)*: From Table 30, *Reference Data*, we see that 10.03 pounds per man are required for a day of supply, which for this brigade amounts to 11.8 tons. The major part of these supplies would be furnished the brigade only when within reasonable distance of the railhead; one exception would probably be such spare parts for vehicles and weapons as can be installed in the field. Some of these spares will be carried on each individual vehicle: spark plugs, fan belts, tire repair kits, etc. The remainder should be divided between the light repair truck in the troop combat train and the ordnance maintenance company. A detailed examination of this subject is beyond the scope of this study; however, an erroneous impression has been created in the minds of most of us as to the quantity of spare parts required to keep modern motor vehicles running; this is due to experience with the worn-out and obsolete equipment which the army has been using since the World War. Tests made at Aberdeen Proving Ground have demonstrated that modern vehicles, new or properly overhauled, need very few spare parts.

5. *Ammunition*: This constitutes the second big problem of supply for the mechanized brigade because the force has such a large potential fire-power in relation to its size. Here, as in the case with rations and motor fuel, it is highly desirable, and in fact almost imperative, that the combat motor vehicles carry as much ammunition as possible. Luckily, the mechanized combat vehicles already developed do have a large ammunition capacity, as well as a large potential capacity. For example, here are some of the designed capacities of pilot combat vehicles:

Vehicle	.30 Caliber Machine Gun		.50 Caliber Machine Gun	
	Rounds	D/F	Rounds	D/F
Armored Car, M-1.....	4500	3+	1500	2+
Combat Car, T-2.....	2000	2—	1200	2

(For "day of fire" [D/F] for the various weapons see Appendix D.)

From these figures it can be seen that all the combat vehicles above, which carry practically all the machine guns except the twenty-five .30 caliber guns in the machine-gun troop, can be expected to carry $1\frac{1}{2}$ days of fire of .50 caliber and .30 caliber ammunition. Some vehicles can carry more, even up to 2 days of fire, but for the sake of uniformity it is believed $1\frac{1}{2}$ days of small-arms ammunition should be the standard organic or integral load of the vehicles. However, when going into battle or on a march, some additional ammunition could be carried in boxes as baggage, giving additional cargo space in the trains for other supplies.

The machine-gun carriers carry only one machine gun, .30 caliber each, hence they are capable of carrying $1\frac{1}{2}$ days of .30 caliber, amounting to 438 pounds. Therefore, each vehicle may be expected to carry $1\frac{1}{2}$ days of fire for its weapons organically as a standard load. Just as extra bandoliers are issued to infantrymen before battle, it is considered both practical and desirable to issue the combat vehicles from the combat train extra ammunition to be carried as extra baggage. This would particularly be desirable when sending one or a small group of vehicles away on a distant mission of several days' duration.

Having now $1\frac{1}{2}$ days of small-arms ammunition on the vehicles, it is recommended that another day of fire be carried in the combat train, *i.e.*, the trucks of the *troop*. This day of fire amounts to the following in tons and truck-loads for the principal units:

	Tons	2-ton Truckloads
Armored-car troop.....	4.36	2.18
Combat-car troop.....	4.75	2.38
Machine-gun troop.....	3.96	1.98
For the whole brigade.....	92.8	47—

Regarding ammunition for the chemical troop, most of which is for the 4.2-inch chemical mortars, it is thought that only a total of $2\frac{1}{2}$ days of fire should be carried (as for the artillery battalion). This is because weather conditions and the maneuvering speed of the combat vehicles will greatly limit the occasions when the chemical mortars can be used

effectively. $2\frac{1}{2}$ days of fire are as much as is prescribed for all classes of ammunition in the brigade in *Cavalry (Mechanized)*.

An additional day of fire for small arms for the two cavalry regiments only, to be carried in the regimental train of each regiment, will thus give the brigade essentially $3\frac{1}{2}$ days of fire of small-arms ammunition, as has the horse cavalry division. This amounts to 40.59 tons per regiment.

The artillery battalion should be provided with a total of $2\frac{1}{2}$ days of fire (this is 1 day more than provided for the artillery of the cavalry division) because of the great likelihood of the brigade operating at great distances from its regulating station and ammunition depot. This is the same amount as prescribed in *Cavalry (Mechanized)*. Further, as a battery is very likely to have to serve detached this ammunition should be carried as far "forward" as possible; the following is proposed: 1 day per battery (with each battery 1200 rounds, 15.9 tons, or 7 trucks); the remainder of $1\frac{1}{2}$ days of fire for 12 guns (amounting to 5,400 rounds, 71.5 tons, or 36 trucks) in the battalion combat train.

A summary of the rations, gasoline, and ammunition of all classes to be carried with the brigade normally is given in attached Appendix C. This also shows tonnages involved; where and how carried; and 2-ton trucks required in the trains.

6. *Evacuation:* The brigade has no hospital facilities, and due to its great mobility it is not considered necessary that it should have any. However, each cavalry regiment, the artillery battalion, the special troops and services (grouped in a battalion command for administrative purposes), and brigade headquarters should have (and this is provided in the *Tables of Organization*) attached medical personnel, both commissioned and enlisted, and ambulances. While the percentage of casualties may be high, their total number will not be. The relative casualties in mechanized and non-mechanized units is open to considerable discussion, but the *British Field Service Regulations* state: "If the infantry reinforcements required for one year are 100%, exclusive of first reinforcements, the percentages for the other arms will be as follows:

Car and mounted units.....	70%
Artillery.....	60%
Tanks.....	50%
Staff.....	30%

The corps or army should evacuate by motor ambulances from the brigade collecting station; ambulance airplanes may be used for serious cases when great distances are involved; this might be absolutely essential in some situations. In many cases empty supply trucks returning for supplies may be used to evacuate wounded men, particularly the less seriously wounded.

7. *Replacements—men:* The number required will be small and these can be forwarded at such times as army supply columns are sent to the brigade.

8. *Replacements—vehicles:* It is difficult to properly estimate this requirement but as well as can be estimated from the records of tank battles in the World War, and bearing in mind the great improvement in vehicles since that time, the daily losses in security and covering force actions should not exceed 5 to 10 per cent and in attacks of a position, 10 to 20 per cent. Generally speaking, tank combat history shows that tank casualties dropped rapidly from about 50% per day in early actions to 10 to 20% in 1918, and *this was in attacks of positions*. Replacement vehicles should accompany the (daily) supply column sent forward by the army because of the additional security thus afforded the supply column. As men and vehicles will usually become casualties together, replacement vehicles should ordinarily carry new crews.

9. *Repairs of equipment (principally combat vehicles):* The small ordnance company with the brigade has not the facilities to effect major repairs to vehicles; therefore, such repairs must be handled in one of the following ways:

- (a) Destroy the vehicle if liable to fall into enemy hands.
- (b) Leave the vehicle to be repaired when the situation will permit by the ordnance service of the next higher unit (usually the army).
- (c) Have an empty supply truck tow the vehicle to an ordnance heavy maintenance shop if the vehicle can be towed.

10. *General:* The expense and complexity of the equipment, its great mobility and fire-power, the possibilities of detached operation and action, and the importance of radio communication all point to the manning of mechanized forces with intelligent and highly trained men of character such as are now selected for aviation duties. For example, any member of the crew (4 men) of an armored car should be able to (a) drive the cars; (b) fire and service any of the three automatic

weapons in the car; (c) send and receive messages by radio; (d) make the maximum of repairs to the car with the tools and parts at hand; and (e) administer first aid. Only by doing this can the maximum fire-power and mobility be obtained from the mechanized unit at the minimum expenditure of supply and evacuation. Leaving out tactics entirely, it is logistically and economically unsound to put a 10 to 20 thousand dollar machine in the hands of a man of the semi-skilled labor type such as the ordinary trooper.

V.—MOVEMENTS

1. *By marching:* It has been demonstrated above that the mechanized brigade, supplied as discussed here, can make a 450-mile round trip away from its base (regulating station and depots). Nevertheless, as long as a mechanized unit is used as a part of a larger non-mechanized tactical unit it appears most unlikely that even such a march will often be needed. Since maneuver is an important element of cavalry operations, marches will be an important phase of the mechanized brigade's work; the supply system proposed here is predicated on giving the brigade maximum inherent marching power.

2. *By railroad:* Due to the radius of action inherent in the brigade, movements by rail should seldom be necessary. Using two vehicles per flat car, the mechanized brigade requires fourteen standard 33-car trains for a rail movement. Due to the large ratio of vehicles to men, a standard B train is unsuitable as it has too many box cars and too few flat cars. It can therefore be entirely moved by rail from a point in about 17 hours on a single-track railroad with two-way traffic. (The slowest line.)

3. *By water:* Our army has been used overseas many times since the Spanish War; therefore the ship-tonnage required to transport and maintain an organization overseas is of great logistic importance. Using the approximate data of note 3, Table 31, *Reference Data*, and page 66, *The Service of Supply*, it is found that the mechanized brigade requires only 24,000 gross tons of shipping, equivalent to one large vessel such as the *George Washington* (used during the World War) or roughly two ordinary army transports.

The supply of this force overseas would require approximately 40 tons daily (not including ammunition) based on data in Table 31, *Reference Data*.

VI.—COMPARISON OF SUPPLY

1. *Statistical comparison:* There being nothing absolute about the supply and evacuation of a new unit such as the mechanized brigade, a better conception of the problems involved in the logistics of this force may be obtained by comparing the mechanized brigade with our present cavalry division, which has approximately the same fire-power. This comparison is given in full in Appendix B. Particular attention is invited to the following:

	Mechanized Brigade	Cavalry Division
Total Class I supplies for (<i>on march</i>)		
1 day of supply (tons).....	82	167
Same, less hay (tons).....	82	92
Same (<i>in camp or bivouac</i>) (tons)*.....	21	161
<i>Mobility factor</i> (miles travelled per ton of Class I supply) (with hay).....	1.55	0.15
Same (without hay).....	1.55	0.27
Day of fire, small arms (including CWS) (tons).....	93	62
Day of fire, artillery (tons).....	48	95
Day of fire, all classes (tons).....	141	157
Maximum daily march (miles).....	150	25
Standard railroad trains required for move.....	14	57
Gross ship-tonnage required for overseas transportation.....	25,000	135,000

*20% of gasoline and oil assumed used daily in camp or bivouac.

The *mobility factor*, proposed by the author to measure logistic efficiency of mobility, corresponds to the miles per gallon of a motor car, because practically all Class I supplies are used to furnish marching power.

2. *Living off the country:* An element of logistics which the above table and Appendix B cannot show is the relative ability of the two forces to live off the country and this ability is in no way susceptible of mathematical evaluation. It is considered that in the operations of large forces there can only be procured locally a part of the necessary Class I supplies, the proportion depending on a number of variable factors in each particular situation. However, in smaller operations in

the early days of a campaign and on raids and pursuits into undemolished territory, "living off the country" will be possible to a great extent. To do so is always highly desirable, especially for cavalry units. Here the cavalry division has a great advantage, especially in thinly settled or uncivilized regions, because the critical item in living off the country is gasoline, of which the mechanized brigade requires five times as much as does the cavalry division and not one element of the former can move without it. It is understood that the War Department contemplates motorizing entirely the field and service trains of the cavalry division, in which case the cavalry division also will be largely immobilized by a lack of gasoline. That is, the service elements will be immobilized so as to prevent marching but the combat troops can still maneuver; in the mechanized brigade the combat elements would also be immobilized. It is believed, however, that on raids and deep reconnaissances in well-populated industrialized regions considerable quantities of gasoline and oil may be obtained "off the country" owing to the wide distribution of motor cars, trucks, and tractors in highly civilized countries. General Fuller, the British Army authority on mechanization, says on this subject: "Petrol supply: A century or so ago armies in the field depended very largely on foraging in order to augment their supplies. In recent times little foraging has taken place, but the advent of mechanized forces may once again bring it to the fore, mainly on account of petrol supply. Petrol and oil will become so necessary to the life of a mechanized force that every endeavor will be made to seize all stocks found in the enemy's country. Practically every town and village in Europe now contains one or more petrol pumps; all these will be used in war in order to augment supply and so cut down transport."

Our *Field Service Regulations* (paragraph 585) stresses this importance mentioning first as a source of supply in the theater of operations "(a) by exploitation of the resources of the theater of operations and captured material," and again: "It is a fundamental principle that in order to insure freedom of action all supplies and facilities available in the theater of operations should be utilized to the utmost. This is especially true of food and forage." It might be well to add to the last sentence "gasoline and oil," for in many settled and industrialized communities in Europe and America gasoline is

at least as plentiful as forage. It is worth noting that the French and German Field Service Regulations *stress* the importance of obtaining supplies locally while the British regulations discuss the subject at length.

3. Another advantage of the cavalry division over the mechanized brigade is that the former has a quartermaster train capable of supplying the division at all times within 2 (or even 3) days' march of its railhead. This is to some extent offset in the brigade by the fact that all trains are motorized, but the maximum daily march of the brigade is such that even so the trains cannot make a round trip to a fixed railhead when the brigade is a day's march away.

VII.—CONCLUSIONS

1. *As to facts:* These are best summarized in the comparative statistics given in Appendix B, but may be further summarized as follows:

(a) The amount of supplies required by the mechanized brigade in tons is approximately equal to that of the cavalry division, *when hay is procured locally* for the latter organization; when hay is not procured locally the mechanized brigade requires only one-half as much Class I supply.

(b) The evacuation from the mechanized brigade is approximately one-fourth that from the cavalry division, based on existing experience tables.

(c) The mechanized brigade requires one-fourth as many standard railroad trains to move it as are necessary for the cavalry division.

(d) The mechanized brigade requires about one-fifth as much ship tonnage for overseas transportation as does the cavalry division.

(e) The cavalry division can supply itself from railhead (by use of its organic trains) several days' march from its railhead; the mechanized brigade cannot do so over $\frac{1}{2}$ day's march.

(f) The cavalry division can expect to live off the country to a greater extent and more frequently than can the mechanized brigade, which requires a little under two (1.89) standard 10,000-gallon tank (railroad) cars of gasoline and oil for a daily march of 150 miles.

(g) When both units are carrying *capacity* loads they have the following march powers without additional supplies being received:

<i>Unit</i>	<i>Miles per Day</i>	<i>Days' March</i>	<i>Total Distance Covered</i>
Cavalry Division.....	25	4	100 miles
Mechanized Brigade.....	150	3	450 miles

(h) The Class I supplies (rations, gasoline, and oil) required by a wholly mechanized unit such as a brigade or smaller may be taken as about 70 pounds per man per day.

(i) The supply and evacuation of a mechanized force are generally a similar problem to those of a non-mechanized unit, *except* for the limitations imposed by the fact that the maximum daily march of all its trains is the same as that of the combat troops.

2. *As to opinions:*

(a) That all gasoline and oil should be furnished in small metal drums (of 5 or 10 gallons capacity) because of:

Ease of carrying extra fuel on combat vehicles;
Ease and rapidity of refilling vehicle tanks;
Making *any* truck available as a gasoline transport vehicle;
Greater speed and cross-country mobility of light (2-ton) trucks than gasoline tank trucks;
Greater ease of war-time procurement of light trucks and small metal drums.

(b) Every effort should be made to carry *as great a quantity* of Class I supplies and ammunition *in the forward echelons* of the combat units, with particular emphasis on *the vehicles themselves*. The distribution shown in Appendix C is considered entirely feasible, predicated on the approved and experimental vehicles *now on hand*. Every combat vehicle should carry 2 days' rations, gasoline and oil; and 1½ days of fire for its weapons.

(c) The mechanized brigade should not be given hospital facilities, extensive or heavy repair facilities, or a brigade quartermaster train. Its supply trains should be organized as shown in Appendix C.

(d) The corps or army, as the case may be, should be responsible entirely for the supply and evacuation of the brigade to a point within ½ day's march (75 miles) of the

brigade, whether stationary or marching, to be accomplished as follows:

(1) By advancing the railhead when practicable (probably not often);

(2) By establishing an advanced refilling point or depot for the brigade, supplying this advanced depot by a motor convoy furnished, controlled, and *protected* by the army;

(3) [Not to be employed normally.] By attaching to the brigade, on its request only, a motor train carrying the necessary additional supplies for a particular march or other operation.

(e) So far as practicable, the supplies in the rear echelons of the brigade should be used first so as to:

(1) Release trucks to return to the "base" or refilling point for supplies as soon as possible;

(2) Decrease the length of the brigade train to the tactical advantage of the brigade.

(f) When security of the train permits, march the regimental trains several hours' march to the rear of the combat echelon of the brigade.

(g) Always detach from the brigade any part of train greater than the expected needs plus one day of reserve.

(h) Since ammunition is such a large part of the supply load of the mechanized brigade, efforts should be made to reduce the "packed weight" of the ammunition by lightening the containers.

(i) For school purposes, the pamphlet *Cavalry (Mechanized)* should change the rate of march (day) of the mechanized brigade from 14 to 20 miles per hour (which is considered reasonable) so as to complete the maximum daily march in 8 hours or less.

(j) Except as to "living off the country" in certain situations, the mechanized brigade has no *logistic* disadvantages in comparison with a horse cavalry division and it has a number of marked advantages.

(k) The logistic qualities of a mechanized cavalry unit should be considered in choosing the type of cavalry unit to be employed in a specific theater of operations.

APPENDIX A
Abbreviated Table of Organization
CAVALRY REGIMENT
(MECHANIZED)

[Based on T/O 423 P (Special), and expanded to war strength by the addition of two combat-car squadrons T/O 427 P (Special)]

Unit	Strength	Vehicles	Weapons (a)		Remarks
			.30	.50	
Headquarters..	37				
Headquarters troop.....	138	58	16	1	
Covering Squadron.....	183	57	58	25	(Consists of squadron headquarters, armored-car troop, and scout troop.) (18 armored cars and 7 combat cars)
Combat-car squadron (each).....	153	45	56	27	(There are 3 squadrons like this in the regiment.) (27 combat cars per squadron) (c)
Machine-gun troop.....	142	34	25		(22 personnel carriers for machine-gun crews.)
REGIMENT....	978	287 (b)	267	107	

NOTES

(a) Machine guns only listed; for complete list of weapons see Appendix D.

(b) This figure does not include the regiment's proportion of the 2-ton cargo trucks (80) added to the brigade to carry the supplies recommended in this study.

(c) Also six 1.85" semi-automatic guns per squadron.

APPENDIX B

LOGISTIC DATA FOR THE CAVALRY BRIGADE (MECHANIZED)
AND THE CAVALRY DIVISION

<i>Item of Logistics</i>	<i>Mechanized Brigade</i>	<i>Cavalry Division</i>	<i>Division Excess</i>	<i>Ratio Horse/ Mech.</i>
<i>War Strength (Officers and Enlisted Men)</i>	2346	9275	6929	3.95
<i>Rations (tons).....</i>	5.87	23.19	17.32	
<i>Animals.....</i>	0	10714	10714	
<i>Grain rations (tons).....</i>	0	53.57	53.57	
<i>Hay (tons).....</i>	0	75.00	75.00	
<i>Vehicles (Total, all kinds).....</i>	771	910	139	1.18
<i>Wagons and other horse vehicles (75-mm. guns not included).....</i>	0	482	482	
<i>Trucks, cars, motorcycles, etc.....</i>	481	356	-125	0.74
<i>Combat motor vehicles.....</i>	290	60(a)	-230	0.21
<i>Gasoline for one day (tons).....</i>	71.99(b)	14.40(b)	-57.59	0.20
<i>Oil.....</i>	3.60	0.72		
<i>Total, gasoline and oil (tons).....</i>	75.59	15.12	-60.47	0.20
<i>One Day of Class I Supplies (tons).....</i>	81.46	166.88	85.42	2.02
<i>Same, less hay (tons).....</i>	81.46	91.88	10.42	1.13
<i>Trucks (2-ton) to haul 1 day Class I.....</i>	41	84	43	2.05
<i>Same, without hay.....</i>	41	46	5	1.12
<i>Class I Supplies, lbs./man/day.....</i>	69.5	36.0	-33.5	0.52
<i>Mobility Factor: mile/ton Class I.....</i>	1.84(c)	0.15(c)		0.08
<i>Same, without hay.....</i>	1.84	0.27		0.15
<i>Road Space: Troops.....</i>	12.0	16.5	4.5	1.37
<i>(miles) Trains.....</i>	2.2(d)	2.7	0.5	1.23
<i>Troops and trains.....</i>	14.2	19.2	5.0	1.35
<i>March Radius on Supplies Carried (miles).....</i>	450	100	-350	0.22
<i>Weapons (Types and number of each)</i>				
<i>75-mm. guns.....</i>	12	24		
<i>1.85 inch semi-automatic guns.....</i>	36	0		
<i>37-mm. guns (one-pounder).....</i>	0	22		
<i>4.2 inch chemical mortars.....</i>	8	0		
<i>.50 caliber machine guns.....</i>	215	36(e)		
<i>.30 caliber machine guns.....</i>	556	360		
<i>Sub-machine guns (.45 caliber).....</i>	298	36(e)		
<i>Rifles, machine.....</i>	0	6		
<i>Rifles.....</i>	722	5054		
<i>Pistols.....</i>	2646	8512		
<i>Day of Fire (tons):</i>				
<i>Small arms (including chemical).....</i>	92.8	62.3	-30.5	0.67
<i>Artillery.....</i>	47.5	95.0	47.5	2.00
<i>All classes.....</i>	140.3	157.3	17.0	1.12

<i>Item of Logistics</i>	<i>Mechanized Brigade</i>	<i>Cavalry Division</i>	<i>Division Excess</i>	<i>Ratio Horse/Mech.</i>
<i>Losses (Attack in Meeting Engagement) (f)</i>				
Men: Dead.....	3	12	9	4.0
To evacuation hospital.....	38	149	111	
Evacuation: ambulance loads.....	7	25	18	3.6
Animals: Dead.....		54	54	
To evacuation hospital.....		172	172	
Combat Motors (g) (estimated).....	29	6	-23	0.21
<i>Replacements Required:</i>				
Men.....	-41	161	120	3.9
Animals.....		226	226	
Combat motors.....	29	6	-23	0.21
Railroad cars required for all replacements.....	17	21	4	1.24
<i>Class II-III-IV Supplies (less ammunition, 1 da/supply (in tons) (h)).....</i>	11.8	46.5	34.7	3.94
<i>Total, 1 Day of All Supplies:</i>				
In tons.....	334	371	37	1.11
In 5-ton trucks (i).....	67	75	8	1.12
In railroad cars.....	12	13	1	1.08
<i>Railroad Trains for a Movement (k).....</i>	14	57	43	4.07
<i>Ship Gross-Tons for a Movement.....</i>	25000	135000	110000	5.4
<i>Overseas Supply (less ammunition) (l) (tons) (daily).....</i>	40	158	118	3.95
<i>Fire-power per Man per Day (based on the day of fire): (in lbs. per man)</i>				
Small arms only.....	79.2	13.5	65.7	0.17
All classes.....	119.5	34.0	85.5	0.29

EXPLANATORY NOTES

REFERRING TO SMALL LETTERS IN () IN TABLE ABOVE

- (a) 24 of these are light tanks transported on trucks on the march.
 (b) One day's march for mechanized brigade: 150 miles; for cavalry division: 25 miles.
 (c) The "mobility factor," proposed in this study as a measure of efficiency in mobility, is similar to the measure "miles per gallon" for a motor car.
 (d) Includes eighty 2-ton trucks added to mechanized brigade to carry the extra supplies proposed in this study.
 (e) These are in the 36 armored cars in the armored-car squadron.
 (f) Table 45, *Reference Data*, C. & G.S.S. used.
 (g) Losses in combat motors *estimated at 10%* in an attack in a meeting engagement, reasoning from World War data on tank losses in attacks on positions and zones.
 (h) Table 30, *Reference Data*, C. & G.S.S., figures for detached corps used as none for lower units available.

Original Military Studies

- (i) This is predicated on 5-ton trucks because the army would probably use such trucks in its supply convoys to the advanced refilling point.
- (k) Standard 33-car railroad trains.
- (l) Table 31 (division), *Reference Data*, C. & G.S.S. used.

GENERAL NOTES

Slide rule in computations.

Data for the cavalry division (less medical squadron) are from *Reference Data*, except that figures have been adjusted for lack of medical squadron; also, figures for days of fire of small arms have been adjusted for the increased number of machine guns now in the cavalry division.

Some of the explanatory notes and general notes are enlarged upon in the text of the study.

The "Fire Power per Man per Day" given in last item is based on the "day of fire" and is not considered quite as accurate for tactical purposes as that based on the maximum sustained rate of fire of the weapons; the latter method is discussed in an article by the author in *Army Ordnance*, Volume XI, No. 61, July-August, 1930, page 22.

APPENDIX C

PROPOSED LOADS OF COMBAT TRAINS: CLASS I AND AMMUNITION

Unit (of Mechanized Cavalry Regiment)	Rations		Gas and Oil (d)		Ammuni- tion		Total	
	Days	Tons	Days	Tons	Days	Tons	Tons	2-ton Trucks
Armored-car troop	2	0.50 (a)	1	2.10	1	4.36	6.96 (c)	4 (b)
Combat-car troop	2	0.37 (a)	1	2.75	1	4.75	7.87 (c)	4 (b)

NOTES

(a) These rations to be carried on the troop kitchen truck normally, but may be carried on one of the 4 trucks of the troop combat train.

(b) These trucks do not normally carry the 2 rations shown in first column; rations will be A or B, depending on the situation.

(c) This total includes the rations given in first column.

(d) Whereas all combat vehicles are to carry 2 days' gasoline and oil on the vehicle, but all cargo trucks to carry 3 days' gasoline and oil; hence figures in this column do not include gasoline and oil for the cargo trucks themselves.

CAVALRY BRIGADE (MECHANIZED)

 CLASS I SUPPLIES AND AMMUNITION
 QUANTITIES AND WHERE CARRIED NORMALLY
 (PROPOSED)

Where Carried	Rations		Gas and Oil		Small- Arms Ammu- nition		Artillery Ammu- nition		Totals	
	Days	Tons	Days	Tons	D/F	Tons	D/F	Tons	Tons	2-ton trucks
On Vehicle (each)	2 (a)	11.8	2 (b)	123.8	1½	139.2	1(f)	47.5	310.5	(c)
On Combat Train	2 (d)	11.8	1 (b)	61.9	1	92.8	1½	71.25	226.0	113
On Field Train	1	5.9			1 (e)	81.2			87.1	44
TOTALS	5	29.5	3	185.7	3½	313.2	1½	118.8	313.1 (g)	157 (e)

NOTES

(a) In addition to emergency or "iron" ration.

(b) Applies to all vehicles except 163 cargo trucks which carry 3 days' gasoline and oil; therefore none for these on combat train.

(c) As these supplies are carried on each vehicle for that vehicle, no extra cargo trucks required to carry this load.

(d) Carried on unit kitchen trucks normally; see table above for combat trains.

(e) In addition to the 157 2-ton trucks of the combat and field trains, there are 6 empty trucks (as a reserve) in the field train, or 163 total (see b).

(f) How much of this can be carried on the prime movers (or trucks) hauling the guns depends on the type of prime mover used; balance to be carried on trucks in the battery and not a part of the combat train.

(g) This total includes only loads carried on combat and field trains.

APPENDIX D

COMPUTATION OF THE DAY OF FIRE FOR THE CAVALRY BRIGADE
(MECHANIZED)

Weapon	D/F (rounds)	D/F (lbs.)
.30 caliber machine gun (ground).....	4040	292.0 (a)
.30 caliber machine gun (combat motors).....	1400	102.0 (a)
.50 caliber machine gun (combat motors).....	700	262.5 (a)
1.85" (3-pounder) semi-automatic gun.....	120	840.0 (b)
.45 caliber sub-machine gun.....	400	26.4
Rifle.....	90	7.5
Pistol, automatic, .45 caliber.....	5	0.28

NOTES

(a) The day of fire for weapons in an armored combat vehicle is different than that for the same weapon when employed on the ground.

(b) This gun is experimental, hence a day of fire has been set up by the author, based on the day of fire for the 37-mm. gun, but using the weight of the 1.85-inch round.

(c) The day of fire for the other weapons has been taken in each case from *The Ordnance Field Manual*, Volume II, Tables (plates) XXVI, XXVII, XXIX, using the same figures as employed for the Cavalry Division (Plate XXIX, pages 22 to 28, inclusive).

THE DAY OF FIRE FOR THE CAVALRY REGIMENT (MECHANIZED)

25	.30 caliber machine guns (ground).....	292	lbs. per gun:	3.63 tons
242	.30 caliber machine gun (combat motors).....	102	lbs. per gun:	12.33 tons
107	.50 caliber machine guns (combat motors).....	262.5	lbs. per gun:	14.04 tons
18	1.85-inch. semi-automatic guns.....	840	lbs. per gun:	7.57 tons
145	.45 caliber sub-machine guns.....	26.4	lbs. per gun:	1.91 tons
260	Rifles.....	7.5	lbs. per gun:	0.97 tons
978	Pistols.....	0.28	lbs. per gun:	0.14 tons

ALL WEAPONS, TOTAL..... 40.59 tons

2 Cavalry regiments (mechanized) (2×40.59): (for details see computations above).....	81.18 tons
Brigade headquarters and headquarters troop.....	2.90 tons
Artillery battalion (small arms only).....	1.01 tons
Chemical troop (includes 4.2" mortar ammunition).....	6.97 tons
Engineer troop.....	0.64 tons
Ordnance company, light maintenance.....	0.14 tons

TOTAL DAY OF FIRE (SMALL ARMS).....	92.84 tons
Artillery battalion, 12 75-mm. guns only.....	47.50 tons

TOTAL DAY OF FIRE (ALL CLASSES),
CAVALRY BRIGADE (MECHANIZED)..... 140.34 tons

NOTE

These figures do not agree with those given in *Cavalry (Mechanized)*, C. & G.S.S., 1933, page 29 (notes) nor with those given in *Reference Data*, C. & G.S.S., 1933, both of which are considered to give too low figures.

BIBLIOGRAPHY AND LIST OF REFERENCES

(USED IN PREPARING THIS STUDY)

- Annual Report of the Secretary of War, F.Y., 1931.* (U.S. Government Printing Office)
- Field Service Regulations, U.S. Army, 1923.* (U.S. Government Printing Office)
- Cavalry (Mechanized).* C. & G.S.S., 1933
- German Field Service Regulations.* (English translation)
- French Field Service Regulations, 1924,* (English translation, C. & G.S.S., 1926)
- Lectures on F.S.R., III. Operations between Mechanized Forces,* by Major General J.F.C. Fuller, London: Sifton, Praed & Co., 1932.
- Gold Medal Essay, 1930,* by Captain D.W. Boileau, Royal Army Service Corps. M.A. Report No. 30628, London, 21 May, 1931.
- Elements of Strategy,* by Lieutenant Colonel G.J. Fiebeger, Professor, U.S.M.A.
- British Field Service Regulations, Volume I, Organization and Administration, Secret, 1923 (Provisional).* London: His Majesty's Stationery Office.
- Ordnance Field Manual, 1933,* Ordnance Department, U.S. Army, Volumes I and II.
- Dynamometer Testing of Ordnance Vehicles,* by Major A.B. Quinton, and Captain J.K. Christmas; O.T.N.I., Aberdeen Proving Ground, 1927.
- The Services of Supply, a Statistical Summary.* (Government Printing Office, 1919)
- Appendix X—Personal experience in connection with mechanization.
- Infantry Field Manual, Volume II, Tank Units, W.D., 1931.* (For data on transporting motors by rail, paragraphs 271-281, inclusive.)
- Infantry Journal,* May-June, 1932, pages 183-185, inclusive.
- Reference Data,* C. & G.S.S., 1933.
- Encyclopedia Britannica,* 14th edition; "Shipping" and "Tanks."
- Tables of Organization,* C. & G.S.S., 1932.
- The Fighting Tanks Since 1916,* by Major R.E. Jones, Captain G.H. Rarey, and Lieutenant R.J. Icks. Washington: National Service Publishing Co., 1933.
- Army Ordnance,* July-August, 1930, "Is Mechanization Expensive," by Captain J.K. Christmas, page 22.
- Modern Military Administration,* by Major General J.C. Harding-Newman. Aldershot: Gale & Polden, 1933.
- One Hundred Problems on Mechanization,* by Colonel (now General) J.F.C. Fuller in *The Army Quarterly* (British), Vol. XIX, October, 1929, January, 1930, page 20.
- Taschenbuch der Tanks,* [Handbook of Tanks], by Major Fritz Heigl, Austrian Army. Munich: J.F. Lehman, 1930. (An excellent, well-illustrated, technical reference work on tanks, armored cars, armored railroad trains, antitank weapons, and mechanized vehicles generally. Contains some historical examples of combat and some tactical discussion.)
- The Remaking of Modern Armies,* by Captain B.H. Liddell Hart. Boston: Little, Brown & Co., 1928.
- The Supply and Evacuation of a Mechanized Brigade,* by Captain C.F. Houghton. (Used for some data on organization of the brigade; his data on gasoline consumption, days of fire for weapons, and supplies to be carried are NOT agreed with.)
- Allenby of Armageddon.* (A Record of the Career and Campaigns of Field-Marshal Viscount Allenby), by Raymond Savage. Indianapolis: The Bobbs-Merrill Co., 1926. (Contains historical illustrations of the use of armored cars in Palestine, 1918.)
- The Army and Its Petrol Requirements in War,* in *Royal Army Service Corps Journal*, Volume II, No. 3, May, 1933, page 163.
- Report of Experimental Mechanized Force,* Fort Leonard Wood (now Fort G.G. Meade), Maryland, 1928. (Ordnance Office file 451/4017, Incl. 1); report dated 10 November, 1928.
- Review of Military Literature,* C. & G.S.S. Quarterly. Found most useful in locating references and evaluating them.

Section 2

ABSTRACTS OF FOREIGN-LANGUAGE ARTICLES

This section contains abstracts of important articles from foreign military periodicals; the remaining articles for each magazine are listed in Section 4.

CONTENTS

	Page
Distant Reconnaissance.....	35
Maneuver of Fires and Compartmenting of Terrain.....	44
Verdun in September 1914.....	62
Organization of New and Modern Divisions.....	65
Artillery in Rear Guard Action.....	68
Tanks and Antitank Weapons.....	71
German Military Doctrine.....	82
Italian Army Maneuvers.....	88

DISTANT RECONNAISSANCE

By Major F. During, Infantry

Due to the development in motorization and mechanization, reconnaissance must be more distant and security forces must be farther advanced in the future. In order to permit local commanders to issue orders on the spot, when motorized units appear suddenly, decentralization of command must take place. Even reserves must be able to act entirely on their own. The rapidity with which motorized battle machines maneuver and in view of their great radius of action, time and space factors of old must necessarily be thrown into the discard.

RECONNAISSANCE OF A CAVALRY DIVISION

The Red First Army had completed its concentration at the right flank of a Red group of armies and in rear of the line: Valmy—Machault—Rethel. It had orders to leave its concentration area at daylight, 2 June, with the mission to attack a Blue army group which was on the line: Redingen—Laroche. The Red 1st Cavalry Division, reinforced by a battalion of 75-mm. and a battalion of engineers, both motorized, had reached Vitry-le-Francois on 31 May.

At 1:00 PM, 1 June, this division received the following missions:

Abstracted from *Militär-Wochenblatt*, 11, 18 June, 11 August, 4 October, 1934. "Aufklärung einer französischen Kavalleriedivision 'Type Armée moderne 1932'."



(1) To report the presence, composition, intention, and main march direction of the Red army group (via Aumetz, Verdun, and Triaucourt); and any secondary march direction (a) via Longwy—Longuyon, (b) or Luxembourg—Esch and Aumetz, (c) or Remich—Diedenhofen and Briey.

(2) To gain contact with the enemy and delay his advance and to reconnoiter north of the Orne and Loison, then between these rivers and the Maas, in order to prevent the enemy from reaching the right flank of the Red army, especially during the time when Red troops were debouching from the Argonne at Montfaucon and Sivry.

(3) The ground reconnaissance troops of the division to complete crossing the Maas at 6:00 AM, 2 June.

Based on the above the commander of the division issued the following instructions:

The motorized brigade to begin its march in such time as to reach the area just west of Verdun before dark, and at daybreak, 2 June, to occupy the heights at Eix and Haudiomont.

The cavalry to march without delay on Triaucourt, rest there the remainder of the night, and then to continue the

march on Verdun, reaching there during the afternoon of 2 June.

Observation planes to reconnoiter at once. The report of the first planes to decide whether night flights will be undertaken. To report the following: Has the enemy been marching today; if so, where is he resting tonight? To report at daybreak, 2 June, the march direction of the enemy.

On account of the distance to be covered by the *ground reconnaissance troops*, the importance of the reports and the rapidity with which the enemy moved, motorized and mechanized units for reconnaissance missions were used, which left at 5:30 PM, 1 June, in three groups.

The main detachment, marching in the center, consisted of 2 platoons armored cars and 2 platoons motorcyclists; the northern detachment consisted of 1 platoon armored cars and 1 platoon motorcyclists and the southern detachment, which was sent in an easterly direction, consisted of 1 platoon armored cars and 2 platoons motorcyclists. Darkness fell at about 9:45 PM, and it is estimated that by that time the detachments should reach the heights of the Maas.

According to many cavalry commanders, distant security detachments are nothing but small reconnaissance detachments, and motorcyclists are usually used for that purpose. They are placed about 25 miles from the main body, at important crossroads and defiles, which the enemy must pass. In comparison, the close-in security detachments are made much stronger. Colonel Argueyrolles demands from distant security detachments that they promptly report indications of any enemy forces and also delay the enemy. This is not as difficult as it may seem. The smallest obstacle forces the motorized units to stop, and when the commander and his men leave the armored cars, tanks, or trucks, in order to remove the obstacle, the security detachments, provided they are well concealed, open machine-gun fire on them. The halt is prolonged and as each minute favors the defender, such a halt is very valuable.

Under any and all conditions the main mission of the distant security detachment is to delay the enemy.

At night the security detachments are certain of success. When in proximity of an enemy, armored cars cannot travel faster than 4 to 5 miles per hour, and if obstacles are placed

on roads, motorized units, travelling without lights, are practically helpless.

Three *security detachments* were dispatched to the heights of the Maas. The center detachment consisted of 3 platoons of motorcyclists, 1 company of engineers, and 2 platoons of armored cars. The other two detachments were of about equal strength.

The mission was to close all bridges over the Maas until the arrival of the advance guard of the motorized brigade at Verdun, at which time the detachment was to be reduced to 3 platoons motorcyclists and 1 platoon engineers.

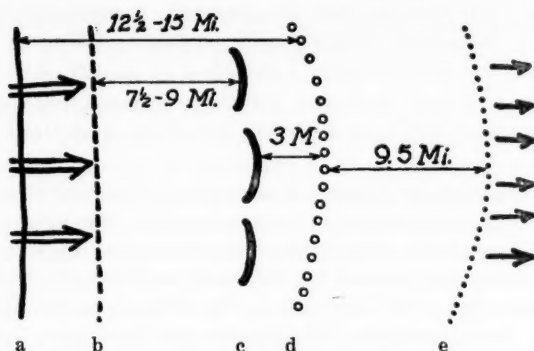
THE CAVALRY DIVISION ON THE MARCH

A cavalry division advances by bounds of 12 to 15 miles. The following table gives some data about motorized units of a cavalry division:

Unit	Length (Miles)	Speed		To Pass a Given Point	
		Day (Miles)	Night (Miles)	Day	Night
Motorized brigade.....	21.25	10	7	2 hours	3 hours
Reconnaissance group.....	3.75	15	9	14 minutes, 24 seconds	22 minutes, 30 seconds
1 battalion motorcyclists..	1.25	23	12	3 minutes, 28 seconds	6 minutes
Dragons portée.....	10.25	10	7	1 hour	1 hour, 35 minutes
1 battalion artillery 75-mm.....	2	10	7	11 minutes, 13 seconds	17 minutes, 24 seconds
1 battalion 105-mm.....	2	8	5	16 minutes	24 minutes

The total length of the motorized units of the division is 32 miles and that of horse cavalry about 7 miles. Due to their difference in speed both marched on different roads. The distance to Verdun is about 47.5 miles. The division left as soon as possible after orders were received. The motorized brigade marched in three columns and the horse cavalry in two. The division commander and his staff marched with the main body of the motorized brigade.

The following sketch shows the advance of the motorized brigade:



a=Position of the Main Body; b=Next Advance; c=Fighting Echelon; d=Reconnaissance Echelon; e=Distant Reconnaissance Echelon.

Security measures are considered sufficient when the close-in security detachments advance about 7 to 9 miles ahead of the main body. This depth is necessary for a change from march column into battle formation.

Each of the three *advance guards* of the motorized brigade consisted of 1 platoon armored cars, 1 troop "Dragons portés," 1 machine-gun platoon, and 1 platoon engineers. They advanced by bounds, first to the Aire and then to the Maas. The advance guards of the horse cavalry consisted of a group of troops with one machine-gun platoon.

After passing the Maas the advance guards were reinforced by one-half machine-gun troop, one 37-mm. cannon, and one platoon armored cars.

At 7:00 PM, 1 June, Red aviation reported enemy forces of all arms in the vicinity of Neufchâteau, and a cavalry division in the vicinity of Virton. Orders were issued to bomb the Blue concentration areas.

The Blue Fifth Army consisted of 4 corps and 1 cavalry division (modern). At 2:00 PM, 1 June, a mechanized division came under control of the Blue army commander. This division consisted of 1 reconnaissance detachment of 2 troops of motorcyclists, 3 troops of armored cars, 1 tank regiment of 2 battalions (1 battalion light and 1 battalion medium tanks), 1 motorized regiment of 3 batteries, 1 motorized technical battalion (2 companies engineers, 1 ponton column, 1 technical

column, and 1 motorcycle detachment), 1 regiment of artillery of 2 battalions 77-mm. and 2 battalions 105-mm., 1 battalion anti-aircraft artillery, 1 squadron of 12 airplanes.

The motorized regiment, artillery regiment, and the aviation squadron airplanes, each had a battery of anti-tank weapons.

The motorized division detrained at Trier and Ehrang.

The Blue commander decided to take the heights west of the Maas as soon as possible. In order to do this, he covered his left flank and secured his débouchement from the woods on the south edge of the Ardennes. In order to accomplish this he sent strong security detachments to the Chiens, between Montmédy and Douzy, with orders to halt there until the advance guards would relieve them.

The cavalry division could reach Chiens in time for this. The motorized division was ordered to protect the left Blue flank and in case contact was made with the enemy, who was reported to be at Verdun, it was directed to attack and drive him back to the west side of the Maas, provided of course, he had crossed this river. The remainder of Blue troops marched south in three stages. First stage, Longwy; second stage, Crusnes; third stage, to the Othain. An east flank guard marched via Briey—Fresnes-en-Woevre.

THE BATTLE

The Red commander was determined to keep the initiative and not to submit to the will of the Blue. The Blue troops met with the greatest of opposition by the Red cavalry division and an attack against the heights of the Maas was unsuccessful, but immediately an envelopment against Trésauvaux and Combres was attempted, which was stopped by the Red right flank. The main attack of the Blues was against the North front. The Blue motorized division advanced via Mangiennes—Romagne—Billy on Azannes and Ornes and at 6:30 PM took the heights of Caures and Beaumont. At 7:30 PM it reached the Maas between Consenvoye and Champ-neuveville, but it was unable to cross the river. Vacherauville, Douaumont, and Vaux were in possession of Red troops. Red reinforcements were reported and Red troops were able to hold on to their gains.

At dawn, 2 June, the fight between the Red 1st Cavalry Division and the Blue motorized division developed. At 9:30 AM the Blue armored cars were close to the outpost line of the Reds, but the terrain was advantageous for the Reds. At this time the mass of the Blue motorized division appeared at the edge of the woods, north of the Orne. Armored and combat cars were only able to advance on the few existing roads, which were under observed fire of all Red artillery. In order to overcome this handicap, speed was increased, but as soon as the Red outpost line was reached, speed ceased to be an advantage, and here the combined fire of Red artillery and other arms was very effective. Several cars were able to gain the heights, but here the terrain was such that contact with other cars was lost. The Blue commander soon saw that success lay only in an envelopment.

But the advantage was with the Red troops. The Blues were unable to contain the Reds on their front; consequently Red was free to maneuver. Also, the Red observation posts easily detected the nature of the envelopment. In the vicinity of Azannes the Blue mechanized forces were able to gain the heights of Beaumont by an envelopment maneuver. But a counterattack by the Red cavalry division broke up the attack of the Blue.

This proved that mechanized units alone are unable to hold any terrain and also that they are unable to keep contact with an enemy, if an obstacle, such as woods or a river, is between them. This makes it imperative that motorized infantry must always accompany mechanized units.

During the morning of 4 June the advance guards of both armies made contact along the front northwest of Dun. The main battle began on 5 June and until noon, 6 June, neither side gained. During the afternoon of 6 June the Red gained the upper hand in the north and Blue was forced to withdraw its right flank.

At the south flank the Blue Army was successful. On 6 June it crossed the Maas near Sivry and at 10:00 AM, 7 June, the left flank reached the line: Brioules—Malancourt, but at no place was Blue able to cross the Maas north of Brioules.

After the successful fight of the Red 1st Cavalry Division with the Blue mechanized division, the Red cavalry division

received orders to protect the right flank of the army and to hold the enemy north of Les Islettes and Villers-en-Argonne. On 3 June the division attacked from the line: Dombasle—Heippes in the direction of Etain. The Blue mechanized division was forced to withdraw to the north bank of the Orne. At dawn, 5 June, the Red division noticed that the Blue mechanized division had been relieved by a regular cavalry division. Red aviation was directed to keep in contact with the Blue mechanized division. The Blue 5th Cavalry Division, having relieved the Blue mechanized division during the night 4-5 June, attacked and drove the Red cavalry across the Maas, where the latter took up a defensive position.

The motor vehicles of the motorized brigade of the Red cavalry division were in need of repair and overhauling, and one-half of the brigade was sent back on 4 June and expected to return on 7 June.

The Blue mechanized division rested for 2 days and at 10:00 AM, 7 June, was in the woods at Vigneulles-les Hattonchâtel. At 11:00 AM, 7 June, a staff officer from the army arrived at headquarters of the Blue mechanized division with an order to have the mechanized division execute a wide envelopment around the rear of the Reds. The direction of the attack by the left flank of the Blue army was toward Clermont—St. Menehould. The Blue division crossed the Maas at Sampigny, then marched in the direction: Bouy—Mourmelon and from there in the direction of Béthény. The Reds had landing fields, radio stations, munition depots, supply establishments, and reserves in this vicinity. The success of such an envelopment depended on surprise, which can only be gained by secrecy and speed.

Besides surprise, however, the following basic principles are essential:

- (1) An envelopment must be made sufficiently wide to go around the enemy's flank.
- (2) The enemy must be contained so that he will be unable to extend his flanks.
- (3) More detailed reconnaissance.
- (4) The strength of the envelopment force must be large enough to take the objectives rapidly and at the same time hold out a reserve.

(5) Terrain which is easily defended is not suitable for this kind of maneuver.

(6) The action must be completed during one day on account of the dangers at night and possible shortage of gasoline.

In order to obtain secrecy the Blue mechanized division left the woods at dark and reached Contrisson—Sermaize at 4:00 AM (50 miles). Here the gas tanks were refilled, at 5:00 AM the march was resumed, and at 8:30 AM Bouy—Mourmelon was reached. During this advance, Blue pursuit aviation was very active.

The division was divided into three attack groups. When the line: Somme—Suippes—La Cheppe was reached, each group acted independently. The north group with the objective Béthény attacked widely to the north. The south group, with the objective Bouy—Mourmelon, remained on the Reims road. The center group advanced to the vicinity of St. Hilaire—Auberive, from which point it could assist either the north or south group, depending on the situation.

The attacks were so timed that they took place at the same hour; this left the enemy no time to take any precautionary measures.

Security was provided by motorcyclists advancing ahead of the rest of the division, thereby preventing ambushade. Flank protection was also provided by motorcyclists, who covered important crossroads and road junctions up to a distance of 15 miles.

The Blue Fifth Army received large reinforcements on 7 June. It had extended its left flank considerably to the south. Between 8:00 and 9:00 AM on 8 June the Blue Fifth Army had advanced to the line: Aincreville—Varennes—Clermont, but it had been unable to take the passes between Vienne-la-Ville—Varennes and between Clermont—St. Meneshould. North of the Ardennes the right flank of the Blue army was being hard pressed. The commanding general decided therefore to extend the left flank farther south, and at night, 8 June, the Fifth Army had advanced to the Viel-Dampierre and Verrières and the 5th Cavalry Division occupied Revigny.

In order to assure the success of the Blue mechanized forces, two groups of large bombers and one group medium bombers of the army group, and two more groups of medium

bombers from an imaginary army group, made two bombing attacks on Béthény and Bouy—Mourmelon. The commander of the Blue Fifth Army realized, that in order to be successful, he must contain the right flank of the Red army. Therefore he went to the headquarters of the 5th Cavalry Division in order to give personal instructions to the commander of that division. Every precaution was taken to keep the enemy in ignorance of the impending envelopment, and after everything had been carefully arranged and prepared, the Blue mechanized division with its 1500 vehicles, made a wide envelopment, in three columns, in a southerly direction passing the Red flank, then turning north; one column attacking Mourmelon, another St. Hilaire, and the third, Béthény. The Red 1st Cavalry Division on the south flank of the Red army, was completely ignorant of the fact that the Blue mechanized division had moved around its flank. The envelopment was a complete success. The lines of communication of the Red First Army were interrupted, all supplies stopped. Confusion came from rear to front, and all routes of withdrawal were covered by the Blue division. Another Cannae!

MANEUVER OF FIRES AND COMPARTMENTING OF TERRAIN

By First Lieutenant J.I. Greene, Infantry

The study which is here submitted for consideration makes no pretense of containing any new or revolutionary tactics. It strives, almost entirely, in the light of the lessons of the World War, to interpret the spirit of French regulations and also to refer, without direct quotation of the texts, to those of its provisions that often appear to be badly understood, if not misunderstood entirely. This prefatory precaution is made chiefly in anticipation of all errors of text, and also of some apparently bold assumptions; for example, some details of tank maneuver or of infantry-tank organization herein included may cause surprise or lend themselves to controversy.

It is especially desired, however, to set forth the idea that a terrain compartment should be considered not only in depth but also as having flanks. The conquest of terrain is related to surfaces and not to lines.

Abstracted from *Revue d'Infanterie*, February, 1934. "La manoeuvre de feux et le compartimentage du terrain," by General Touchon.

From this idea a number of consequences follow.

Setting aside the assumption that the problem of the crest is insoluble, General Touchon concludes provisionally that the attack is most often a series of shoulder thrusts. This procedure, which is a makeshift, appears to be imposed by the scarcity of means; which obliges one to concentrate first on one point and then on another.

But is this makeshift not imposed by terrain also? It is here that the notion of compartmenting terrain comes in: its depth and also its flanks.

With due consideration to the hostile strength, the author thinks that it is terrain as much as the means one has in hand that determines the form and rhythm of maneuver.

From this comes the proposed solution: a combination of successive thrusts, first to one oblique and then the other, of the classic maneuver with attacks to the flanks—attacks that depart from these lateral crests of terrain compartments already held, and have the purpose of securing successive compartments.

In other words, General Touchon proposes to reach, by a little known route, a well-known conclusion: it is the irregularities of a battle front that give birth to maneuver—but only by the most efficacious employment of the means of combat.

I

In practicing all methods of advancing, the French have formed the habit of regulating things in succession; i.e., from terrain compartment to terrain compartment, from visible horizon to visible horizon, which is to say in the broadest terms, from ridge to ridge.

The smallest as well as the largest units, after advancing a distance depending upon the size of the unit, reach a ridge line as their first objective.

There they halt to prepare for another advance.

A new base of departure¹ is organized and the advance or the attack is continued.

¹General Touchon considers a base of departure to be the band of terrain on which the bulk of the following elements are disposed:

Infantry and tank observation posts;

Bases of fire of flat-trajectory infantry weapons (including antitank guns);

Supporting arms of tanks (eventually);

By operating in this manner one imagines the problem of organizing this base completely solved. This is merely dodging the question, however. For the World War seemed to prove often enough that it could not be solved.

This question is then considered, by beginning somewhat earlier in the sequence of battle than is ordinarily the custom.

The first attack, assuming it to be strongly supported by artillery, infantry bases of fire, and tanks, should enable the infantry to reach without difficulty the visible horizon. By this term is meant the rear military crest of the opposite ridge. Sometimes the topographical crest will be reached with no great trouble.

This degree of success, however, is not enough. We must drive at least as far as the military crest of the enemy's side of the ridge, in order to establish another base of departure from which to advance down that side.

Thus it can be seen that the problem becomes suddenly and remarkably complicated.

It is rightly recommended that tanks should not advance beyond the topographical crest, which thus forms, in the great majority of cases, their final objective. Flat-trajectory infantry weapons have no field of fire to the front from the rear military crest, although there is—hypothetically at any rate—a field of fire for long-range, oblique fire to the flanks. Indirect fires of machine guns and high-trajectory weapons have no observation whatever. It is the same with artillery fires; for artillery, too, meets serious difficulties when it tries to fire upon forward slopes.

Ordinarily these difficulties are overcome by teaching that the combat groups of the fire echelons must creep on to the forward military crest and thus gain the terrain necessary for establishing the new base of departure.

Even if they can do this (a thing that is far from being proven) the problem is not yet solved; for the base must be established so that it can support an attack that will descend the forward slope. The attack will have a considerable dead

Observation posts of high-trajectory weapons (sometimes even these weapons themselves);

At least the advance observation posts of artillery;

The echelon of fire is established, when it is desired—with rare exceptions—on the exterior limit of this base of departure.

angle, even assuming that the attack formation is approximately a line along the military crest.

This being the case, the echelon of fire must have positions well down the forward slope in order to accomplish anything. But this further assumption still fails to solve the problem unless it is assumed that the enemy will not do any firing in time of war.

What is the nature of this hostile fire, seeing that it does exist?

It will comprise the fires of all arms that the enemy has disposed on the opposite slope. These fires may either be direct or flanking. Their sources will, in general, be along the enemy's military crest, and sometimes lower.

Their distance forward from the topographical crest is not likely, in the general case, to be very great. They will have short fields of fire. Moreover, profiting by the confusion among the enemy caused by one's own irruption on the ridge, one might count on overcoming the enemy by an infantry assault as at La Fontenelle (8 July, 1915) and Monte-Menfenera (10 December, 1917), and elsewhere. It would be even better with tanks, which are practically indispensable if the enemy's defensive position is organized.

But these close fires will be greatly increased by more distant infantry fires which will be located most often on points lower than the crest—long-range fires that are certain to be efficacious enough in some situations for the enemy to reduce his close resistance to a few sentries or scouts.

Also included in these fires must be those of antitank weapons.

And to all these infantry fires, of course, must be added those of artillery, which very often aviation alone will be able to disclose.

The sum total of these fires will permit hostile counter-attacks to use uphill terrain that is especially favorable to their support.

In unstable situations as well, fire composed of automatic arms, antitank guns, and artillery will find these same conditions of terrain so favorable that it may well hold up all hostile progress from an opposite ridge.

It is the old problem of the opposite slope, which the fire-power and range of modern automatic weapons now complicate greatly.

During the World War, it was not solved on any sector of the front. General Touchon mentions several: the ridges and summits of the Vosges, the famous and now legendary points of struggle from which the two adversaries were never able to descend: Chemin des Dames; the ridge of Notre Dame de Lorette, that of Vimy, etc.

Losses were always severe whenever infantry tried frontal attacks against an enemy with powerful supporting fires. The example of the Mery-Bellou ridge, on 11 June, 1918, is present in every memory.

During the French advance from July to November in 1918, the enemy held up French divisions almost daily on one ridge or another, thus gaining easily whatever delay his main body needed.

Nevertheless, there have been strongly defended ridges that have fallen.

It should be clearly borne in mind that compartmenting is not solely the consideration of terrain in depth alone; for there are also the flanks of the compartment, which are also usually comprised of high ground and often of spurs extending from the visible horizon ridge.

Thus the terrain compartment forms a natural reentrant (*place d'armes*), and to seize it, it is necessary to capture the far end of the compartment as well as its flanks. Now, it is by the interior slopes of these flanks that the main ridge will be captured.

In the first part of this article only its lateral section (the main ridge), was touched upon in order to take one thing at a time, paying little or no attention to its sides. It has been seen that one gets into all sorts of difficulties by so doing.

The utilization of the whole reentrant—sides and end—is very easy. The enemy, as a matter of fact, is badly situated to prevent by his fires the installation of a base of departure on one side of the reentrant. He can concentrate upon such a base only the action of only a part of the weapons situated in the adjoining compartment, assuming that this compartment is not attacked but that it is, however, neutralized by the fire of friendly neighbors.

Moreover, this base of departure on one side or the other of the compartment will place obliquing fires upon a large part of the hostile positions that normally act toward the front, and will sometimes take them in rear. This base will also be excellently situated to return the fire of hostile weapons that are employing oblique or flanking fires from positions on the forward slope of the main ridge.

A geographical ridge is not a continuous and precisely straight watershed. It has irregularities of direction, it has saddles, and it has a beginning and an end.

Then if a commander uses the method of terrain compartmenting, as soon as he has reached, in one or several compartments, a suitable visible horizon, he will stop there; and by a judicious exploitation of the sides of compartments, he will permit the advance of adjacent units, which, making use of an irregularity of the ridge, of a saddle, of another ridge or a valley, will move forward in the adjacent compartment, supported by the fires—and, as the case may be, by the movement—of the units that have seized the first compartments.

The new attack will in turn take obliquely, or in rear, the hostile defenders of the slopes of the main ridge (the first visible horizon) which will fall like ripe fruit.

Thus it is seen that one proceeds by successive "blows of the shoulder," but these "blows of the shoulder" are not justified by one's lack of means alone—especially of artillery—but by terrain also.

It is impossible to escape from the laws of terrain.

The author then presents a concrete case, an attack put on according to these principles, and from which one can follow in detail the organization of one of its flanks and the exploitation from that flank as touched upon above.

GENERAL SITUATION

The Reds, from the north, have been organized on the defensive since the first part of May, facing to the south, at La Courtine Camp and to the west.

The Red main line of resistance and outposts have been determined approximately.

In front of the Blue I Corps, the enemy line is held by the 61st Division (161st, 162d, and 163d Regiments) along a front of 3.5 to 4.5 miles. The work of organization has only been in progress since 8 May. The 161st and 162d Regiments only have been recognized. The boundary between these is generally the ravine: moulin de Grand Pre, ruisseau de la Ribière, and ravin de la ferme l'Aussine.

It seems probable that the Red 161st Infantry occupies the front-line sector on the west of the Red I Corps.

Information from various sources is to the effect that the 61st Division has only its organic artillery.

The Blues, from the south, have been in contact with the Reds since 8 May.

On 8 and 9 May, the Blues drove back small detachments of the enemy and succeeded in capturing a base of departure close to the hostile positions.

The resistances encountered in driving back what were believed to be the advance hostile elements were apparently supporting fires of all arms from the main line of resistance. In view of this the Blue commander decides to stop all piecemeal efforts and launch a general attack on the morning of 12 May to carry the hostile defensive positions.

The III Corps, on the west, is charged with the main effort of the army in the direction: Mas d'Artiges-Linard.

The I Corps, in the center, will support the main attack and take with its left and center the heights of Camp de la Courtine, and then the Forest of Magnat.

It has three divisions in line: the 1st, 51st, and 2d Infantry Divisions, from west to east.

The attack will have two phases:

1st Phase.—The 1st Infantry Division, making the main effort of the Corps, is to capture the ridge: Puy des Pouges—La Fagitière (intermediary objective B).

Later the 1st and 51st Infantry Divisions are to carry simultaneously the heights of Puy de la Crois-Louis, Grand Puy de Lair, and Puy du Gardonnet (objective D).

The 2d Infantry Division . . .

All three divisions will then push forward to objective O (the first Corps objective).

2d Phase.—. . .

Supporting units:

1st Division: two battalions of Renault tanks, Nos. 1 and 6; and one brigade of divisional artillery.

51st and 2d Divisions: . . .

The intermediate objective B, announced for the I and III Corps, includes a broad terrain compartment the visible horizon of which is the line: Puy de Gué, Puy des Pouges, Puy de la Fagitière, Puy Cassin, etc.

Puy des Potences and its slopes form the flank leg of this compartment.

The commander of the I Corps plans to capture with his left the objective B (the ridge: Puy des Potences, Puy de la Fagitière, Puy des Pouges). That objective taken, he will halt his forces and not attempt to advance across the Pâture de Soudeix. Instead he will attack with his right in the adjoining terrain compartment in order to capture Puy du Naud and Puy de la Croix-Louis with the support of flanking fires from the vicinity of Puy des Potences. As soon as objective D is seized, he will then advance toward the objective O, having taken under fire from their rear hostile weapons that hold up our advance from positions along the ridge: Puy de la Fagitière—Puy Cassin, this being accomplished by first taking objective D.

This maneuver of supporting the troops in the second compartment by fire from the first compartment being a delicate one, the commander took care to dispose the 1st Division astride the two compartments. It is the commander of this large unit who will handle the maneuver.

In executing the orders of the I Corps commander, the commanding general of the 1st Division issued this order:

1ST DIVISION ORDER

1st Division
General Staff
3d Bureau

Command Post, 11 May, 12 M.

GENERAL OPERATIONS ORDER NO.....

Extracts
(1st Part)

I. GENERAL SITUATION.—See the situation given above.

II. ENEMY.—See the situation given above.

III. MISSION OF THE 1ST DIVISION.—In the 1st phase, the division, making the main effort of the Corps, has the mission of taking the heights

of Camp de La Courtine, which command the Forêt de Magnat from the south.

Main effort along the axis, hill 868.2 (La Dague, La Fagitière, route de Felletin).

On the west, the 7th Division (III Corps) attacks in the direction of Puy de Gué—Boucheresse.

On the east, the 51st Division attacks in the direction of Lair—Beissat.

IV. SUPPORTING UNITS.

(a) Tanks: Light Tank Battalions Nos. 1 and 6;

(b) Artillery: One division artillery brigade (3 battalions of 75s, 2 battalions of 155s).

V. PLAN OF MANEUVER.—*Successive objectives.*—The capture of objective O will be accomplished in three stages:

1st Stage: Seizing of the ridge: Puy des Pouges, Puy des Chaumillons, Puy de la Fagitière, Puy Cassin, Puy des Potences. Main effort on the west in conjunction with the 7th Division (III Corps) Objective: B.

2d Stage: Capture, in conjunction with the 51st Division, of the ridge running from Puy Cassin to Puy de la Croix-Louis. Objective: D.

3d Stage: Advance along the whole front. Main effort on the west in conjunction with the III Corps. Objective: O (1st phase).

VI. DISPOSITIONS FOR THE ATTACK.

(a) Two regiments in the first echelon; 1st Infantry on the west, 2d Infantry on the east; each regiment with two battalions in the first echelon. Boundary between 1st and 2d Infantry: See Map.

(b) Tanks: 1st Battalion (less one company) attached to the 1st Infantry. 6th Battalion attached to the 2d Infantry. Battalion command post at outlet south of La Courtine, route d'Ussel.

VII. EXECUTION OF THE ATTACK.

a. *Preparation.*—The attack will take place at H hour to be announced later. It will be preceded by an artillery preparation of 1 hour and 30 minutes against the hostile defensive positions to destroy the known defensive works and the observed hostile observation posts.

b. *Execution.*—(1) *Capture of B.*—The 1st Infantry, acting in conjunction with the III Corps, will carry in succession Puy d'En Bas, Puy du Truguet, and Puy des Pouges. It will be covered on the east by the 2d Infantry, which will first seize the Puy des Potences, and then the Puy Cassin and the Puy Fagitière. Upon the capture of B the 1st Infantry will occupy positions on the eastern part of the objective from which it can support the attack against D.

(2) *Capture of D.*—The attack will be made by the 2d Infantry in conjunction with the 51st Division at H hour, this hour to be fixed by the commanding general of the division.

(3) *Capture of O.*—Main effort by the 1st Infantry, which will seize Petit Puy des Pouges and Puy du Planaud. This regiment will be covered on the east by the 2d Infantry which will take Puy Gary and Grand Puy Faveix. The attack will be made at H hour, to be fixed by the commander of the division and will follow the capture of D as soon as possible.

VIII. ARTILLERY.

(a) *Assignments:*

Direct support: 3 battalions of 75s to the 1st Infantry; 2 battalions of 75s to the 2d Infantry.

General support: 1 battalion of 75s and 4 battalions of 155s.

(b) *Missions.*—The direct support groupings will execute raking fire during the last 30 minutes of the preparation. Beginning with H hour they will fire barrages for each successive bound assigned to the infantry; (these fires to be regulated by the commanding general of the division artillery in accordance with an understanding reached between the infantry colonels and the commanders of the artillery groupings).

The groupings in general support will have the mission of protecting the attacks and will place fires upon unforeseen targets. Protection at

H hour will be established on the line: Puy Truguet, Pouges, Chaumillons, Fagitière, Cassin and Naud.

Fires will be shifted after the capture of B, to the southern slopes of Petit Puy Pouges, Puy Gary, Puy Faveix, Puy de la Croix-Louis, Puy du Naud.

For the attack on D, protective fires will be placed initially on Serclade, Grand Puy Faveix, and Puy de la Croix-Louis. This last fire will be shifted later to the heads of the ravines to the north of Puy de la Croix-Louis.

For the attack on the objective O, protective fires will be placed initially on the objectives of the first-line regiments, and later shifted to 500 yards north of objective O.

IX. RESERVES.—*Infantry*.—The 3d Infantry will occupy dispositions along the axis of advance: one battalion at Camp de Laval, one battalion at Camp de Grattadour, and one battalion in the woods south of La Courtine.

Tanks.—One company of tanks of the 1st Tank Battalion. Park: at the officers' mess.

X. LIAISONS—COMMUNICATIONS.

(a) The 51st Division will be responsible for communications between the 51st and 1st Divisions.

(b) The 2d Division, between the 1st and 2d Divisions.

(c) The 1st Division, between the 1st and 7th Divisions. Mixed detachments of one section of riflemen and one machine-gun squad will advance along all boundaries between units specified above. Axis of communications of division: La Courtine—La Daigne—Puy de la Fagitière—Petit Puy des Pouges.

XI. COMMAND POSTS.

Unit	Initial	After the Capture of B	After the Capture of D	After the Capture of O
Division, Division Infantry and Di- vision Artillery	The eastern entrance of La Courtine	Same	Same	Arbre de la Daigne
1st Infantry	Crossroads 740.8 (southeast of Lombarteix)	Puy d'en Bas	Same	Puy des Pouges, 825.3
2d Infantry	Bois de Fonds Morts	Same	Puy des Potences, side 869	Puy Cassin
3d Infantry	La Courtine railroad station	Same	Same	Same

Division Observation Post: Arbre de Saint-Denis.

Commanding General, 1st Infantry Division

X.....

By order of the Chief of Staff

X.....

The commanding general of the 1st Division realizes clearly the maneuver of the Corps; hence, he takes the pre-

caution of directing a single regiment, the 2d Infantry to attack the Potences ridge, which separates the two terrain compartments on his front. In this way, the colonel of the 2d Infantry can regulate his maneuver from end to end until objective O is taken. This maneuver is difficult because of the reciprocal supporting fires that must be arranged.

On receiving the order of the division commander the colonel commanding the 2d Infantry issued in turn the following order:

1st Division
2d Infantry Regiment
No.....

Command Post, 11 May, 5 PM.

ATTACK ORDER FOR 12 MAY

I. GENERAL SITUATION.—(See above.)

II. ENEMY.—(See above.)

III. MISSION OF THE REGIMENT.

a. Capture of B.—To cover, on the east, the attack of the 1st Infantry by assaulting, first Puy des Potences, then Puy Cassin and Puy de la Fagitière. Axis of the main effort: Puy des Potences—Puy de la Fagitière.

b. Capture of D.—Attack in conjunction with the 51st Division (10th Infantry), to seize successfully Puy du Naud and Puy de la Croix-Louis. Axis of the main effort: the ridge joining these two hills.

c. Capture of O.—To be announced later.

IV. PLAN OF MANEUVER.

a. Capture of B.—To attack to the west of the ridge: Puy Cassin—Puy des Potences—Puy du Boutignon, supported by tanks, in order to carry (1) in the first bound: the nose: Les Potences—Bois Carre (A); (2) in the second bound: the objective B. Then to establish on the ridge: Puy Cassin—Puy des Potences (B) a solid base of fire facing east in order to support the later attack on Puy du Naud and Puy de la Croix-Louis.

b. Capture of D.—To attack along the axis: Puy du Naud—Puy de la Croix-Louis, supported by this base of fire and in close conjunction with the 51st Division (10th Infantry). In the first stage, to carry Puy du Naud (C) without the support of tanks; in the second stage to carry Puy de la Croix-Louis with the support of tanks, after establishing passages for them. The attack of the second stage will be completed by a lateral action of the tanks along the axis: crest of Puy Cassin (866.8)—crest 854.6—triangulation of point on Puy de la Croix-Louis, with the aim of taking in flank and rear the defensive positions south and west of Puy de la Croix-Louis, during the development of the frontal attack.

V. INITIAL FORMATIONS FOR THE ATTACK.

a. Infantry.—2 battalions abreast; 1st Battalion on the east, 2d Battalion on the west.

b. Tanks.—One company of tanks at the disposal of each assault battalion; 1st Company, 6th Tank Battalion to the 1st Battalion, 2d Company, 6th Tank Battalion to the 2d Battalion.

c. Supporting weapons.—1st Battalion, one 37-mm. gun, one mortar group; 2d Battalion, the rest of the supporting weapon company (howitzer company—Tr.)

d. Regimental reserves.—3d Battalion, 2d Infantry; and 3d Company, 6th Tank Battalion.

VI. The attack will begin at H equals 7:00 AM, after an artillery preparation of 1 hour and 30 minutes.

a. *Capture of B.*—The 2d Battalion, supported by the tanks disposed in depth, will seize on its first bound the nose: Les Potences—Bois Carre (A), by advancing across the south and west slopes of Puy des Potences. Pushing rapidly forward one part of its base of fires to positions on the nose (A), it will attack without delay the ridge: Puy la Fagitière—Puy Cassin, taking the utmost advantage of the cover on the left.

The operation of the 2d Battalion will be covered on the east by the left company of the 1st Battalion (3d Company), reinforced by two machine-gun sections and 37-mm. guns of that battalion. This company will carry Puy des Potences and then occupy the nose 300 yards north and take up positions from which to place fire on Puy du Naud.

The 3d Company, reinforced, will be under the orders of the commander of the 2d Battalion until B is captured; it will then revert to its own battalion commander.

The rest of the 1st Battalion will place its fires on the nose at 869.0 and in the ravines bordering it, in a manner to facilitate the seizure of the eastern slopes of Puy des Potences by the 3d Company.

Furthermore, the 3d Machine Gun Company, remaining in the area assigned to its battalion (around La Daigne), will place indirect fires north of the ridge: Puy de la Fagitière—Puy Cassin, and on hill 854.6, these fires to be regulated in accordance with the artillery fire schedule.

After objective B is taken, the 2d Battalion, while securing and organizing the captured terrain, will place all available fires in support of the 1st Battalion, by engaging targets on the north slopes of the line D.

b. *Capture of D.—1st Stage.*—Attack to be made by the 1st Battalion without tanks, but directly supported by two battalions of artillery; the attack to be made to the east of Ravin de Grand-Pré at H hour, the hour to be fixed by the commander of the division, after conferring with the 51st Division, and as soon as possible after the capture of B.

The Ruisseau de Ribière will be crossed under the protection of fire from the base on Puy des Potences and of all artillery firing on the Puy du Naud or masking with smoke the hostile observation posts on Puy de la Croix-Louis. Puy du Naud will then be captured, followed by a halt on the objective D, of about two hours. During this halt, two points of passage, E and F, across Ruisseau de Ribière, will be built for the tanks. Also, part of the base of fire will be displaced toward the southeastern nose of 866.8.

2d Stage.—Resumption of the attack, with tanks, at H hour, the hour to be fixed by the regimental commander, after conferring with the 10th Infantry of the 51st Division. Axis of attack of the 1st Battalion: Puy du Naud—Puy de la Croix-Louis, in conjunction with the 10th Infantry.

A lateral attack will be made by two sections of tanks (chiefly from Company No. 2, 6th Tank Battalion) along the axis: crest of Puy de Cassin, 866.8—crest 854.6—triangulation station on Puy de la Croix-Louis, for the purpose of taking the hostile defenses of the south and east slopes of the Puy de la Croix-Louis in the flank and rear. This attack will be conducted by the commanding officer of the 6th Tank Battalion acting in conjunction with the commander of the 1st Battalion and through their respective staffs.

As soon as the slopes of Puy de la Croix-Louis are mastered, the commander of the 1st Battalion will advance his left elements to crest 854.6 in order to maintain effective contact between the 1st and 2d Battalions.

VII. ARTILLERY.—Two battalions in direct support under the orders of the regiment will support *successively* the advance of the 1st and 2d Battalions. Command post of this artillery grouping: To be announced later.

Herewith:

- (a) Copy of preparatory fires: . . .
- (b) Copy of schedule of supporting fires: Objective B . . . ; Objective D . . .

VIII. REGIMENTAL RESERVES.—3d Battalion; 3d Company, 6th Tank Battalion; both to be in position of readiness near Fonds-Morts, prepared to move forward by reconnoitered routes along either of the following axes: *a.* Grand Puy du Ruche—Puy Cassin; *b.* Moulin de Grand Pre—Puy du Naud—Puy de la Croix-Louis.

IX. PREPARATORY MOVEMENTS.—*a.* *Line of departure.*—Assault battalions and attached elements: north of the line: 841.2—Poste de Vedette No. 1—Arbre de la Daigue—845.2. Reserves: . . .

b. *Movements.*— . . . All units to be in place by 4:00 AM.

X. FIELD WORKS.—The pioneers of the engineer section attached to the regiment will make two tank passages, E and F, across Ruisseau de la Ribière. Dumping of infantry and tank materials and the execution of the work to be accomplished under the orders of the commanding officer of the 1st Battalion, who will have under his orders the above-mentioned personnel.

XI. COMMAND POSTS.

<i>Unit</i>	<i>Initial Command Post</i>	<i>After Capturing A</i>	<i>After Capturing B</i>	<i>After Capturing C</i>	<i>After Capturing D</i>
2d Infantry	Bois des Fonds Morts	Same	Same	Same	Woods 500 yards south of Puy des Potences
1st Battalion	857.1	Same	Same	South slopes of Puy du Naud	400 yards north of Puy du Naud
2d Battalion	Poste Vedette No. 1	Woods 200 yards west of 867.3	300 yards east of the ruins of Soudeix	Same	Same
10th Infantry (51st Division)	***	***	***	***	***
1st Infantry	***	***	***	***	***
Grouping of direct support artillery	West slopes of Mont Pibeu				

XII. LIAISONS AND COMMUNICATIONS.—, . .

1. The colonel assigns to the 1st Battalion, which has to advance in the terrain compartment from la Daigue toward Puy du Naud and Puy de la Croix-Louis, the task of organizing the base of fire on Puy des Potences, which he reinforces. In

order to seize B, he attaches one company of the 1st Battalion to the 2d Battalion, the maneuver in the first terrain compartment being a single operation (supporting fires of all kinds, eventual use of the reserves). But after B is captured, the company reverts to the orders of its own battalion commander, who will have charge of the maneuver in the second terrain compartment, thus supported by his own fires.

This condition is most helpful, if not absolutely necessary, to the smooth progress of the operation.

2. After B is taken, the tanks that have supported the 2d Battalion rally about 500 yards in rear of Puy Cassin and Puy des Potences, facing to the north and east, ready to go into action in the event of a strong counterattack by either hostile infantry or tanks.

The colonel of the 2d Infantry, however, decides to make further use of them. Not content with letting the commander of the 1st Battalion use his base of flanking fires from Puy des Potences, he decides to use a scheme in the second compartment similar to that which he used in the first. An infantry attack will be difficult, if not impossible; but tanks have nothing to fear from bullets coming from some distance to the south. Again, the ridge: 880.3 (Puy Cassin)—854.8-895.7 (Puy de la Croix-Louis) forms a screen which will cover the movement of the tanks north toward Puy de la Croix-Louis.

They will debouch from the low ground between Puy Cassin and Puy des Potences.

The protective artillery fires placed on Puy Gary and Grand Puy Faveix will also screen the movement on the north. (This area could be smoked.)

The tanks are supported by the base of fire on Puy des Potences and by all available fire from the south slopes of Puy Cassin.

They will be followed after a short interval by the infantry, which should seize ridge 854.8, a point which might be dangerous.

The opportune delivery of this flank attack is a delicate matter for which the tank battalion commander is responsible. It is he, who, in some way, must here coordinate the effort of all the tanks against Puy de la Croix-Louis. This conception is not according to regulations but is believed to have the merit of opening a window on the near future.

The maneuver, which by similar methods would continue until objective O was reached, appears doubtless to be slow and prudent. It is, however, considerably less murderous than attempting to break the line: Puy Chaumillons—Puy Cassin with repeated frontal attacks.

II

Regulations state with truth that small units of infantry can hardly be trusted to choose their own terrain of action.

Moreover, no matter how carefully the high commander plans to avoid for his troops the worst difficulties encountered in capturing a ridge, one cannot hope that he will always succeed completely.

An infantry unit, especially during the stages of establishing contact, of exploitation, or of pursuit, may well have to attack a defended ridge as was indicated above.

In making such an attack it will follow a procedure laid down by the higher command.

It will seek out all possible routes to the front for the purpose of installing its weapons and observation posts, and it will seek particularly, possible positions for the delivery of oblique and flanking fires.

If the unit succeeds in slipping its observers forward, they will look for hostile positions, disclosed by the flashes of arms, the direction of projectiles, the movements of ammunition carriers, etc.

The unit will work ardently to insure the protection and camouflage of these important posts.

All this work will take a long time; in fact, a very long time. The high command must remember this; for if it lacks patience, heavy losses can easily result.

But it will happen that, in spite of all their efforts, units will fail. One resource still remains to them, however—the night.

Darkness, in fact, allows the installation of the new base of departure, inasmuch as enemy fire becomes intermittent and is employed more or less at opportune targets.

Infantry may well be broken by these nocturnal implantations.

It will often be advisable for artillery observers to follow the same lines.

The base of departure is installed.

The firing echelon will also be pushed forward to its place in advance of the base of departure.

It is not a question of making a night attack in the full sense of the word.

The firing echelon will be halted on a good, clear-cut, terrain line: such as a road, a curtain of trees, hedges, etc. And on the following morning all fires will be directed in front of this line.

The existence of this terrain line is an essential condition for the kind of maneuver that was frequently executed, both in the natural course of events and by order, by the French infantry during the World War, especially in 1918.

At daylight progress may be resumed, but under present methods, supported by fire. The hostile fire will begin again, of course. And however efficiently counter fires are conducted, the enemy fires are liable to be strong enough to prevent for a long time any advance from the positions on the ridge. Also, it will be necessary to strengthen considerably the firing echelon, which will be difficult, if not impossible, to reinforce until a large part of the enemy's long-range weapons are silenced.

Tanks will be of assistance. If they cannot be pushed directly forward of the ridge at night, or advanced by round-about routes, their speed and armor can still be counted on to move forward and overtake the echelon of fire at the moment it jumps off or a few minutes later.

The protection that darkness gives can apparently be afforded by smoke also. Smoke can at least cover the advance as well as a natural fog.

III

From the beginning of this study, it has been assumed that the objectives, the lines to be captured, were usually ridges. Instead, however, these may be the edges of forests or woods, and the outskirts of towns or villages. If hostile fire from strong positions, disposed in depth, stops a force upon such an objective, the reasoning remains the same.

In fact, here too, it is found that one is pinned to the ground on a line, and a further advance from it is poorly supported by the infantry and artillery fires.

Moreover, one must make use of positions along the sides of the woods, etc., in order to organize the exploitation of the first success.

Also, it is during the night that the troops will gain the necessary ground forward of the woods, on which to install the new base of departure.

During the advance in the summer and fall of 1918, the enemy fire often brought the French to a halt on such terrain as this.

IV

What effect will the appearance of the modern, mechanized instruments of warfare, well-armed, rapid, strongly armed, and directed by radio, have upon the solution of the problem?

In open terrain they will make the position of infantry on a ridge still more untenable. The menace alone of mechanized elements will force infantry to take refuge behind natural protective terrain features. Not only will protective works but time also be necessary to stop their advance across open ground.

If the infantry has the support of friendly tanks, it will have captured the first visible horizon with greater ease, and the mechanized units, by their counterattacks, will help them to hold the ridge. It is this situation that will bring about battles between tanks.

But the advance beyond that ridge is a difficult operation for mechanized units. In fact, their echelonment in depth will be nothing at the passage of the crest. And during the descent of the forward slope they will have little or no support from artillery or infantry fires.

Speed and armor alone will help them. One cannot discount these factors without giving them due consideration.

However, one saw so many tanks burning on ridges in 1918, that the belief is that it will usually be necessary for the modern tank to be supported by a well-established base of departure before it can advance into the unknown regions of the forward slope.

On the other hand, it can render a number of services in our exploitation of the flanks of terrain compartments. Actually it will be through the tank that there will be a return to maneuver.

In fact, in the more general case, it is only by the fires of the tank that an infantry unit can act from one terrain compartment into another. The movement of infantry is interdicted in a zone covered by hostile fires that support an advance in a direction perpendicular to its own.

An effort has been made, in the concrete case, to realize such a maneuver with the tanks now available to the French.

It is felt, moreover, that many of the risks this action held would not be present in the employment of rapid, easily oriented tanks, using radio.

In conclusion, General Touchon points out that the powerful aid that the use of track-laying vehicles give to infantry, both in displacing bases of fire within terrain compartments as fast as these are captured, and in assuring the vital ammunition supply that is essential to such maneuvers of fire.

CONCLUSION

In considering the offensive,² while recommending at the same time that its efforts be restricted to the seizure of useful terrain on the ridge forming the visible horizon, and that the seizure of this ground be exploited by broadening the front of attack by means of successive blows from flank and rear, it will be better to bring forward the specific wording of the *French Infantry Regulations*, Part Two:

"In the attack, the use of reserves is dictated by the desire to engage them in zones where the enemy is giving way. In this event, every effort should be made, not to deepen, but to widen the breach, this by combined frontal and flank action. The maneuver of infantry looks to the establishing, not of pockets in the hostile position, but of salients that will facilitate the concentration of fires. (No. 177)"

* * * * *

"Progress in the attack, and the concentration of fire, are obtained under the best conditions, when the situation permits, by fixing the enemy on his front and at the same time outflanking one of his flanks.

²General Lemoine, in the *Cycle of Information for Generals and Colonels*, 1933, says: "The progressive offensive is what we are most accustomed to. It requires a great superiority of combat means. It also calls for a skillful evaluation of the terrain that is to be captured. With regard to this latter, every time I have had the chance for the last fifteen years, I have called the attention of combat troop leaders to the difficulties and danger involved in the passage of ridges under hostile fire, and to the necessity of taking these difficulties into account in selecting successive objectives. I hope that I have succeeded in convincing you. If I insist upon this point for one last time, it is because I am thoroughly convinced myself that, during the last 60 years, thousands upon thousands of men have paid with their lives for the failure to understand this law."

When the enemy cannot be taken in the flank, it is necessary first of all to penetrate his position and establish salients therein which can then be placed under converging fires. (No. 207)"

As for the defensive—even the most fleeting—one must seek ruthlessly to place the arms in such a way as to resist the enemy, first at long ranges, and then at short, with an intense fire as he comes over ridges and out of woods and villages. It is thus made impossible for him to use his own fires by keeping him from deploying his flat trajectory weapons and preventing observation on the part of his curved trajectory arms and artillery alike.

To guard against lateral hostile thrusts from one compartment to another, the compartment flanks—ridges and outskirts of woods and villages especially—must be strongly held by occupying them with well commanded units and by combining that occupation with concentrations of fires. These are "the partitions" required by the regulations covering the organization of defensive positions, the importance of which is obviously of first rank.

And it is thus, it appears, that it can be prophesied that there will be a return to maneuver—to that maneuver which is sought by all, and which is, indeed, simply the displacement of fires. One can apply here, also, while "grinding at importance of terrain," the well-known and oft quoted words: "It is the dented, irregular front that gives birth to maneuver: Don't talk to me of hideous straight lines!"

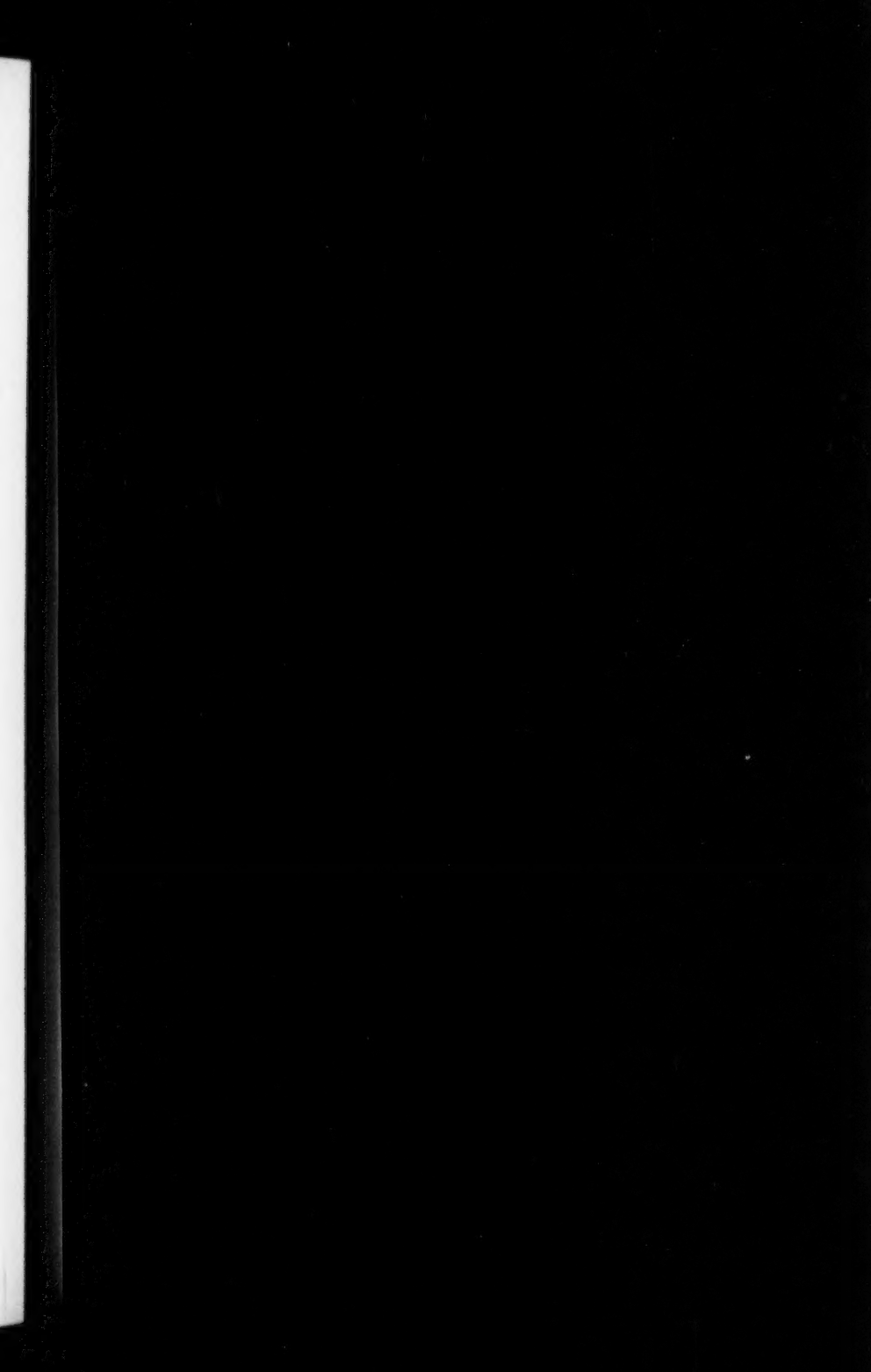
VERDUN IN SEPTEMBER 1914

By Major F. During, Infantry

The role played by General Sarraill during the battle of the Marne must necessarily be of great interest, because his actions were in direct opposition to the directions and orders given by Joffre, and consequently had a direct bearing on the operations of the German Fifth Army during August and September, 1914.

The feeling between Joffre and Sarraill was rather strained. Sarraill believed strongly in the offensive and was very outspoken in his views, and the strategic ideas of Sarraill differed

Abstracted from *Militär-Wochenblatt*, 4 September, 1934. "War Verdun im September 1914 einzuschlieszen und einzunehmen? Die Rolle der 3. französischen Armee und ihres Führers Sarraill."



**SPECIAL MAP
TO ACCOMPANY**

**"THE MANEUVER OF FIRES
AND THE COMPARTMENTING
OF TERRAIN"**

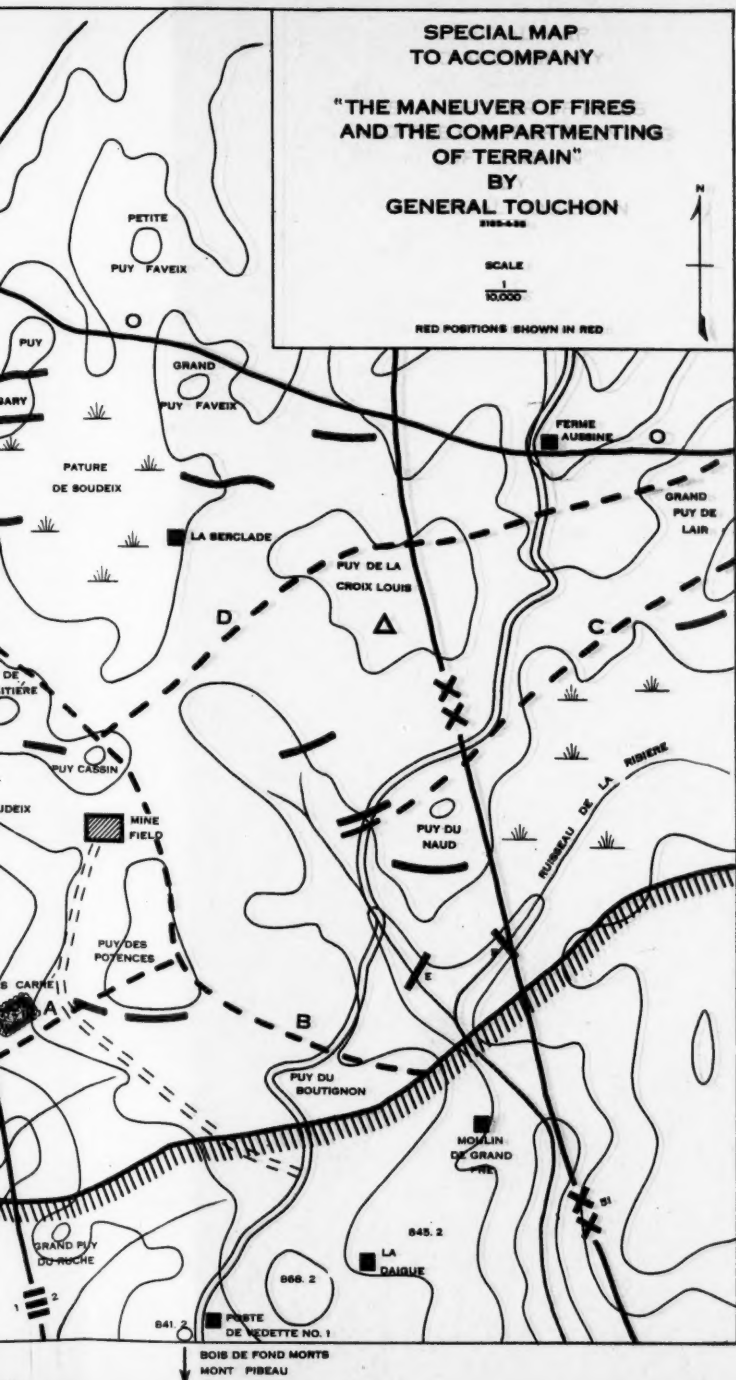
**BY
GENERAL TOUCHON**

2105-4-52

SCALE

1
10,000

RED POSITIONS SHOWN IN RED



SEIBAT

PUY DU
GARDONNET

LAIR

i
l
t
a
c
t
r
z
c
c
a

in all fundamental points from those of the French General Headquarters. According to Sarrail, Joffre ordered the counteroffensive by the English Army and the French Fifth, Fourth, and Third Armies only after he had permitted the Germans to occupy, without opposition, the rich land around Lille.

On 24 August Joffre ordered the retirement of the French troops, because (according to Sarrail) Joffre was confused by the reverses met by the French Fourth and Fifth Armies. On 25 August the left flank of the French Third Army was severely defeated near Marville and driven back to the Meuse at Sivry.

During the night 25-26 August Joffre ordered the withdrawal of all French forces to the line: La Fère—Laon—Cräonne—Guignicourt—Vouziers. General Sarrail wanted to make a stand along the Meuse, but on 1 September Joffre ordered the French Third Army to withdraw to the vicinity of Bar le Duc.

This order came as a blow to Sarrail, for it meant to him that Verdun would be given to the Germans without opposition and that the loss of Verdun would be a terrible blow to the morale of the French people. Therefore Sarrail decided to disregard the orders to withdraw and to keep in contact with Verdun and at the same time remain in contact with the retiring French Fourth Army—a practically impossible task. On 2 September Joffre again ordered Sarrail to withdraw, this time to the line: Pone sur Yonne—Arcis sur Aube—Brienne le Château—Joinville, a distance of about 50 miles south of Verdun. This order was again disobeyed by Sarrail (*"désobéissance de Sarrail devant Verdun,"* according to the French). "Were I to obey orders, Verdun would be surrounded and my army would be 50 miles away. All fortresses would fall quickly. Verdun and Paris are the main points of our line and the place from which our counteroffensive must start." Sarrail wanted to save Verdun and at the same time keep in contact with the French Fourth Army. Joffre had intended to leave Verdun to its fate.

It was Sarrail who kept the army of the German Crown Prince from surrounding Verdun.

In September 1914 this fortress was poorly manned (164th, 165th, and 166th Regiments and a few territorial regiments, whose combat efficiency was doubtful). The fortification was somewhat incomplete and the ammunition supply insufficient.

Before the battle of the Marne, plans had been made on the German side to surround Verdun and on 2 September the German Crown Prince received orders to take Verdun from two sides. He organized two artillery attack groups (one west and one east of the Meuse). The western group had to combat the weakest part of the fortress, and for this reason it was made the stronger group, consisting of the 6th and 12th Artillery Regiments (210-mm. mortars), two 100-mm. batteries, the 20th and 29th Engineer Regiments, the engineer siege train, and the balloon detachment No. 4. The eastern group consisted of the Austrian mortar division (four 305-mm. mortars), a battalion of heavy howitzers (on 8 September another battalion was added), two battalions of light howitzers. The beginning of the battle of the Marne, however, made it necessary to disband the western group, in order to use this artillery in that battle.

The French Fourth Army was now a full day's march from the Third Army. This caused Sarrail some worry, as it offered the Germans a chance for a breakthrough between the two French armies. In the meantime, however, General Gallieni had changed Joffre's mind and he (Joffre) decided to start the counteroffensive at the Marne and not at the Seine, as he had first contemplated.

The situation of the French Third Army favored this and it also prevented a complete break between Joffre and Sarrail. On 6 September Sarrail unsuccessfully started the counteroffensive, but the German Fifth Army drove him on the defensive. His losses were enormous. The threat of a breakthrough by the Germans between the French Third and Fourth Armies became imminent and the French Third Army found itself in a precarious position. Only the timely arrival of the French XV Corps northeast of Sevigny saved the Third Army from becoming annihilated. The Germans, having failed to recognize the favorable situation, lost a marvelous opportunity to drive through the gap between the Third and Fourth Armies. On 8 September the situation of the French Third Army again became critical. In order to cut off the French Third and Fourth Armies, the Germans started an envelopment in a southerly direction. The French Third Army was attacked in center and on the right flank, while the left flank was threatened by an envelopment. At

6:00 PM, 8 September, Joffre ordered Sarraill to withdraw his flank to St. Mihiel. Had Sarraill followed this order, Verdun would have been lost, but Sarraill did not withdraw. During the night, 9-10 September, the German Fifth Army executed a successful night attack, which drove some of the French infantry, especially the reserve divisions, through their own artillery to the rear, leaving the artillery to fight it out alone.

Early on 10 September Fort Troyon reported that the situation was hopeless and at 11:00 AM, 10 September, the French Fourth Army reported that it was being severely attacked and that it had to draw in its right flank. The threat of a breakthrough between both armies appeared again.

It would have been very disastrous for Sarraill, had von Moltke adhered to his original plan of having the Army Group of von Strantz (V Corps, I Bavarian Corps, and the 33d Reserve Division) attack the outer forts; but von Moltke changed his plan and ordered the I Bavarian Corps through Belgium to the German right flank, but before it was ready to enter the battle the race to the sea had begun. The French Third Army was saved from destruction by the vacillation of Moltke.

On 10 September Sarraill dispatched his three reserve divisions towards the south, and on 11 September contact with Verdun was lost. Touant, a general staff officer on Sarraill's staff said that "nothing prevents the Germans now from taking Verdun from the south," but Moltke ordered the German Armies to withdraw to the north of the Argonne. Sarraill felt relieved and in his memoirs takes full credit for saving Verdun by disobeying orders of Joffre.

ORGANIZATION OF NEW AND MODERN DIVISIONS

By Major F. During, Infantry

I.—TANK DIVISION

During the World War the tank was an auxiliary weapon of the infantry, but this has been changed; in future wars we will find independent tank brigades attached to infantry divisions, and also tank divisions having independent tactical

Abstracted from *Militär-Wochenblatt*, 18, 25 September, 1934. "Gliederung neuzeitlicher Truppenkörper. Vorschlag der Kriegsgliederung einer 'Kampfwagen-Division' und einer 'Schnellen Division'."

and strategical missions. This idea is not new. We find it in the organization of divisional and army cavalry, but the organization of a tank division is a step into the unknown, because the strategical employment of tanks is new and not tested under actual conditions. The speed of travel of a tank division is similar to that of a motorized division, only the former is better suited to cover all kinds of terrain.

A tank division should be used only on offensive missions, and the objectives should be tank units, motorized units, and enemy's lines of communication, but never enemy fronts.

The division should consist of two tank brigades and one "Jäger" brigade. The reason for the latter is that a tank brigade can take terrain, but is unable to hold it. The "Jäger" brigade can hold terrain on a front from 6 to 8 miles and also provide the necessary security, in case the tank brigades are in need of reorganization, or repairs.

The tank brigade has one battalion of 100 light tanks and three battalions each of 50 medium tanks. The "Jäger" brigade has three battalions, each having 26 infantry cannons. The division aviation consists of 45 two-seater pursuit planes which are used both for reconnaissance and pursuit.

The mission of the armored-car battalion is distant reconnaissance and security.

The artillery regiment consists of two battalions of anti-tank and antiaircraft weapons and one battalion of light guns. This latter battalion takes part in the tank fight.

The engineer troops consist of one mine battalion, one engineer battalion, and one ponton battalion.

Organization of a Tank Division

1 Military Police Company			Headquarters			1 Motorcycle Company		
Tank Brigade			Tank Brigade			Jäger Brigade		
1 Bn of 100 light tanks			1 Bn of 100 light tanks			Infantry Cannon Regiment		
1 Bn 50	1 Bn 50	1 Bn 50	1 Bn 50	1 Bn 50	1 Bn 50			
medium tanks			medium tanks					
1 Group of 3 Pursuit Squadrons 45 planes					1 Armored-car Battalion			

Artillery

1 Bn antitank and antiaircraft guns		1 Bn antitank and antiaircraft guns		1 Bn 75-mm.
Medical Troops	Communications Platoon	Ponton Bn	Mine Bn	Engineer Bn
Shop	Gas tanks	Bakery Supply Columns	Butcher shop	Trucks

II.—FAST MOTORIZED DIVISION

A fast motorized division is simply an infantry division transported in trucks. It fights like any other infantry division. A motorized division is especially adapted for defense, to close gaps in the front line, to prevent a breakthrough, or in case a breakthrough has occurred, to encircle the tank units which have broken through and in that way prevent exploitation. In an attack the motorized division can be used to occupy areas or terrain features which were won by tank units. The main mission, however, is defense against tank units, and the division is organized accordingly. It has 162 infantry cannons and is able to defend a front of 12 miles.

The motorized division has 3 infantry regiments of 3 battalions each, with 6 to 8 infantry cannons per battalion and 2 infantry cannon regiments each having 54 cannons (47-mm. infantry cannons).

The armored-car battalion has 50 armored cars.

The artillery regiment consists of 3 battalions, capable of firing antitank, antiaircraft, and regular artillery mission. Two battalions have 75-mm. and one battalion 85 and 100-mm. guns.

Organization of a Fast Motorized Division

1 Military Police Company		Headquarters	1 Motorcycle Company	
Infantry Regiment motorized		Infantry Regiment motorized		Infantry Regiment motorized
Infantry Cannon Regiment			Infantry Cannon Regiment	
1 Observation Squadron, 9 planes			1 Armored-car Battalion	

Artillery Regiment

1 Bn 75-mm. 1 Bn 75-mm. 1 Bn 75-mm. 1 Bn 85 and 100-mm.

Medical Troops	Communications Platoon	Ponton Bn	Mine Bn	Engineer Bn
Shop	Trucks	Gas Tanks Supply Columns	Bakers	Butcher shop

ARTILLERY IN REAR GUARD ACTION

By Major F. During, Infantry

The *German Field Service Regulations* state in part ". . . the artillery with the rear guard has the mission to force the enemy to deploy at long distances in order to delay his pursuit." This seems clear and sound, but there are times when it is impossible for the artillery to comply with this regulation.

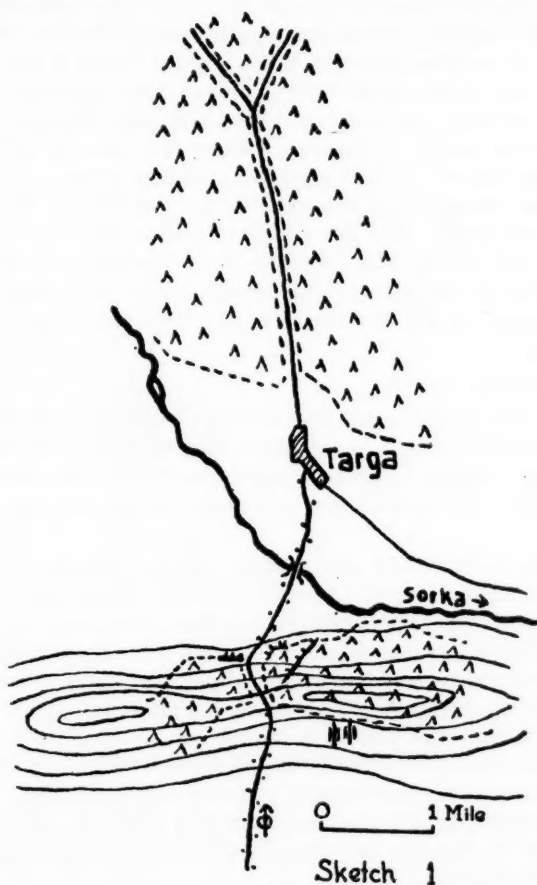
In the following two historical examples the rear guard artillery had to deviate from the principles laid down in the *Field Service Regulations*, but they delayed the enemy long enough to permit the main body to make a successful withdrawal.

Example No. 1:

The rear guard of a division, which was withdrawing to the south, occupied the heights south of Targa, with two batteries in position as shown on the sketch. The bridge of the Sorka had been blown up. At 2:00 PM, aviation reported two enemy columns about 7½ miles north of Targa marching south. The rear guard artillery commander intended to open fire on the enemy as soon as he debouched from the woods north of Targa. But the rear guard commander estimated that the enemy, upon receiving artillery fire, would immediately withdraw to the woods and await the arrival of its own artillery; therefore he issued orders to hold the fire, when at 5:00 PM, a cavalry point, followed by infantry with two pieces of artillery debouched from the woods. The enemy troops entered Targa and rested there. The rear guard commander deduced that the enemy did not intend to continue the pursuit

Abstracted from *Militär-Wochenblatt*, 4 August, 1934. "Artillerie im Nachhutgefecht."

before the next day. Originally the rear guard had the mission to remain in position until dark, but new developments made it necessary to issue orders to the rear guard to hold the enemy for at least several hours the following day north of Targa.



The rear guard commander was certain that the position of the rear guard was unknown to the enemy; therefore, he decided to use a battery of heavy howitzers. His request for the battery was granted, and after dark it went into position

south of the hill and adjacent to the road. Patrols reported that the enemy was repairing the bridge over the Sorka. At daybreak an observation post reported five wagons carrying ponton equipment and other material at the bridge. The area between Targa and the bridge was full of infantry. At the southern exits an enemy battery went into position. The howitzer battery opened fire on the enemy battery and put it out of position before it had a chance to fire a shot; then Targa was taken under fire. The two light batteries of rear guard artillery and the heavy machine guns opened fire on the troops south of Targa. Twenty-five minutes after the fire was opened the area around Targa was strewn with dead, and the few who had escaped this fire had fled to the woods north of Targa. The fire was kept up for some time on the woods and at 2:00 PM the rear guard withdrew without being molested by the enemy, who remained here for 2 days. The withdrawal of the division was accomplished without interruption.

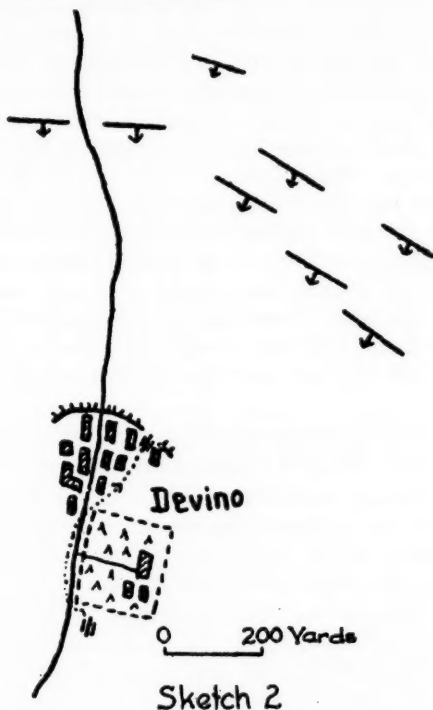
Example No. 2:

A rear guard, consisting of a rifle company and one platoon artillery of two 75-mm. guns were in position at Devino, with the mission to hold the enemy north of that place until 2:00 PM. The main body had begun its withdrawal at daybreak.

About 9:00 AM weak enemy forces appeared about 1 mile north of Devino. At 9:30 AM the enemy had reached a distance 1,000 yards north of that place, preparing to envelop the right of the rear guard. The two guns opened shrapnel fire, but were unable to stop the enemy's advance. The artillery commander decided to move his guns into the yard of the house at the northwest corner of Devino, from which place he fired point blank on the enemy. This surprise fire was effective and the enemy's advance was stopped for the time being, but after he had recovered from the first shock, he tried to take the two guns by assault, but again the artillery fire stopped this.

At 2:00 PM an enemy battery opened fire on the town and the infantry started another attack. The enemy artillery caused some casualties, but it was unable to put the two guns out of action. The infantry attack was unsuccessful.

Immediately after this the artillery and the infantry of the rear guard withdrew to the south, unmolested by the enemy. It had fulfilled its mission. Both cases show what artillery can do under circumstances when a compliance with *Field Service Regulations* is impossible.



TANKS AND ANTITANK WEAPONS

By First Lieutenant C.T. Lanham, Infantry

For fifteen years the tank has occupied the center of the military stage and, by consequence, its natural opponent—the antitank weapon. As a result a new impetus has been given to the ancient struggle between armor plate and the armor-piercing projectile.

Abstracted from *Revue d'Infanterie*, July, 1934. "Chars et anti-chars," by Commandant Perré.

How shall this modern variation of an age old rivalry be decided? Some say that the antitank weapon shall carry the day, "for the cannon has always conquered armor plate." This is a strange affirmation, for if the cannon had even once definitely established its superiority this ancient rivalry would have been forever at an end. The actual truth of the matter lies in the fact that improved technique sometimes results in a temporary rupture of the nice equilibrium between the two. The technical improvement in the offensive arm may swing the balance so precipitately in its favor as to cause the momentary disappearance of one or more of the established forms of defense. But the wheel turns; the defense finds new methods; and the old struggle continues. Thus the development of the shoulder weapon resulted in the complete disappearance of individual armor from the battlefield; neither man nor horse could support the weight of armor necessary for protection. But when it occurred to an inventive Briton that the gasoline motor afforded a means of restoring mobility to armor, the tank was born and the classical struggle was given fresh life.

Let us, then, as practical military men, examine the problem thus created and seek to determine:

1. The relative equilibrium that actually exists between the tank and the antitank weapon; that is, to evaluate the practical efficacy of the actual antitank weapons now in use as opposed to the actual tanks now in use.
2. The direction and the importance of technical evolution, the mutual reactions of the two adversaries and the tactical consequences thereof, for the next twenty or thirty years in order to establish an intelligent armament program.

Fortunately our proposed analysis is somewhat simplified owing to the fact that the technique of any given period leaves but a narrow field in which the skill of the designing engineers can function. Therefore the results attained by all countries are not only comparable but are usually closely related. Similarly it seems possible to make a reasonably accurate forecast of the probable trend of evolution of these weapons during the next twenty or thirty years for technique, like nature, advances only gradually.

GENERAL TYPES OF TANKS ACTUALLY IN USE

Table I

Type	Weight Tons	Dimensions (Yards) L W H	Crew	Armor Most Exposed Parts	Maximum Instantan- eous Speed (Miles per Hour)	Armament
Very Light	3 to 5	3-3½; 1½-1 4/5; 1½-1 4/5	2	6-10 mm.	18 to 31	1 machine gun (usually)
Light	6 to 9	4; 1¾-2; 2	2	15-20 mm.	6 to 24	1 machine gun or 37-mm. gun
Medium	10 to 25	5-6; 2 2/5- 3; 2 1/5- 2¾	At least 3	10-25 mm.	15 to 24	1 machine gun and 1 37- mm. (mini- mum)
Heavy	30 to 45	8-10; 3- 2½; 3+	Up to 12	20-25 mm.	6 to 12	At least 1 37- mm. and some ma- chine guns
Very Fast Christie	This type not considered "because it is specifically American and corresponds to the special problems of an immense country, poor in good roads (sic.) and which has no serious military rival on its own continent."					

There are five distinct categories of tanks shown in *Table I*. At the moment there is a strong tendency in all countries to increase the armor in each category. As a general rule we may say, the more recent the model the heavier its armor. Thus it appears at the outset that we must deal with the maximum figures of armor thickness given in the table, i.e., with light, medium, and heavy tanks carrying from 20 to 25 millimeters of armor over their most vulnerable portions, and with the very light models carrying from 10 to 15 millimeters.

In addition to this we must take into consideration the fact that designers seek further protection for the more vulnerable parts of their machines by introducing as many oblique surfaces as possible, thereby reducing the likelihood of any shell striking these surfaces in a normal plane. Indeed it may be said that only so rarely as to be negligible will a shell strike these danger points perpendicularly. To be effective,

a projectile must strike these heavily armored portions at an angle of incidence of at least 30 degrees.

The dimensions of the models set forth in *Table I* show wide variations. Of course the possibilities of a direct hit increase as the size of the tank increases. It should be noted, however, that even the smallest tank, which presents a silhouette roughly comparable to that of a standing man, is unable to avail itself of cover in the manner of a skirmisher. It cannot utilize those small accidents of the terrain which afford such excellent cover and concealment for the infantryman and which permit him to advance over considerable distances free from hostile observation. Not even the smallest tank, once it has been picked up, can hope to shake off the hostile observation.

Referring again to *Table I* we note the heading "maximum instantaneous speed." By this is meant the maximum speed that a tank, already in motion, can acquire over several hundred yards of hard, flat ground. It is evident that tanks cannot engage in combat at such speeds. Let us therefore disregard this theoretical maximum and pass to a consideration of the practical speeds. At the outset the term "average speed" should be discarded, for unless this term is accompanied by a precise indication of the distance to be travelled and the nature and the conditions of the terrain, it is devoid of meaning.

We may classify the practical speeds of the tank more or less according to its function. Thus we have:

1. Its march rate.
2. Its speed of maneuver on varied terrain.
3. Its speed when engaged in combat.

The march rate of the tank does not bear directly on the subject of this paper, so we shall not deal with it.

The "maneuver speed" is obviously dependent on the "maximum instantaneous speed" but also varies directly with two other important factors in the equation:

1. The difficulties of the terrain.
2. The conditions under which the pilot must operate his vehicle.

Taking into consideration the restricted vision of the pilot it is inconceivable that a tank can exceed 10 or 12 miles per hour over varied and unknown terrain. If we turn to the heavy tank and consider its "maneuver speed" as a function

of its "maximum instantaneous speed" (as pointed out above), we find that to achieve even a trifling increase in speed we must make an enormous increase in the horsepower, hence heavier motor, heavier track, and more tonnage. Thus we find the maximum speed of the heavy tank more or less definitely limited by technical problems. Indeed, it appears safe to state that 10 or 12 miles per hour is the absolute maximum maneuver speed of tanks in all categories and this only over firm, relatively open terrain that is free from severe accidentation.

The third category, combat speed, is reduced by the limitations of the second and in addition by (1) the necessity of fighting as a group and conforming to the orders of the platoon leader; and (2) above all by the difficulties of observation and by the necessity of stopping from time to time to adjust the fires of the tank weapons. Even at 6 miles per hour the terrain that is crossed cannot be carefully observed. The combat speed of a tank is usually less and often much less than that figure. If we set 6 or 7 miles per hour as the average combat speed that will be actually realized by tanks capable of 24 or 31 miles maximums we will err on the side of too much speed, if anything—not too little. The old Renault F.T. furnishes an excellent indication of this. This tank was capable of about 5 miles per hour as a maximum. Yet, based on innumerable combat experiences, its average combat speed was prescribed as $1\frac{1}{4}$ miles per hour.

Taking into consideration all that has been said of the tank, we are now able to state the problem that confronts the antitank weapon. The antitank shell must strike its target at an angle of incidence of at least 30 degrees and at the same time be able to penetrate armor plate 10-mm. or 15-mm. thick on the very light tanks, and armor plate 20-mm. or 25-mm. thick on the light, medium, and heavy tanks. Meanwhile the tank will be moved at a speed of 6 or 7 miles per hour but will ordinarily be unable to conceal itself and will remain constantly in view on the battlefield.

THE GENERAL TYPES OF ANTITANK WEAPONS ACTUALLY IN USE

The factors which permit us to evaluate the theoretical possibilities of the antitank weapon are:

1. The thickness of the armor plate that its projectiles must pierce.

2. The minimum angle of incidence at which its projectiles must strike that armor to pierce it.

3. The ranges at which this penetration can be effected.

The first two factors have been treated in the first part of this discussion and need not be gone into again. As to the ranges, we shall consider but two: 500 yards and 1,000 yards. We take 500 yards because the peculiar conditions under which the tank operates, prevent its own weapons from firing effectively at ranges greater than 400 or 500 yards. The anti-tank weapon must therefore be able to attack the tank at this range. We take the second range, 1,000 yards, because the more powerful antitank weapons being heavier, more easily located, and hence more vulnerable, must be relegated to the rear positions of the defensive position, say about 1,000 yards in rear of the main line of resistance, but at the same time must be able to play their part in the general coordination of the defensive scheme of fire.

Table II

Weapon	Caliber	Muzzle Velocity	Maximum Rate of Fire (Rounds per Minute)	Weight of Weapon (Pounds)	Penetration [30° Angle of Incidence (Minimum)]
Automatic Rifle	20-mm.	750	40	76	500 yards: 15-mm.-16-mm.
Machine Guns	12-mm.-14-mm.	800-1000	200-300	220-300	500 yards: 15-mm.-16-mm.
	20-mm.	800-1000	200-300	300-340	500 yards: 20-mm.
Cannon	31-mm.-40-mm.	500-650	30	400	500 yards: 20-mm.-25-mm. 1000 yards: 15-mm.-16-mm.
	44-mm.-47-mm.	500-600	30	500-600	500 yards: 40-mm. 1000 yards: 25-mm.

A brief study of Table I and Table II brings us to the following conclusions:

1. The following type of weapon is efficacious against the very light tank which carries about 15-mm. of armor over its most vulnerable portions:

(a) At 500 yards:

- (1) A single shot weapon, caliber 20-mm., weight about 80 pounds.
- (2) A machine gun type of weapon, caliber from 13 to 20-mm., weight from 220 to 340 pounds.

(b) At 1000 yards:

A single shot weapon, caliber 37 to 47-mm., and weighing from 400 to 500 pounds.

2. The following types of weapons are efficacious against light, medium, and heavy tanks, carrying from 20 to 25-mm. of armor over their most vulnerable portions:

(a) At 500 yards:

- (1) A weapon of the machine gun type, caliber 20-mm., weight from 300 to 340 pounds.
- (2) A single shot weapon, caliber 37-mm., weight about 400 pounds.

(b) At 1000 yards:

A single shot weapon, caliber 47-mm., weight at least 500 pounds.

Now that we have set forth the possibilities of these two adversaries in their present state of development, let us place them on the field of battle and try to sketch the duel that shall take place between them at the type ranges of 500 yards and 1000 yards.

First imagine a tank appearing at 500 yards from an antitank weapon which is capable of piercing its armor at this range. The tank comes and goes, searching the terrain over which it passes. From time to time it pauses to adjust its fire or to observe. Occasionally it will make a short dash forward at 12 miles per hour in order to reach a new zone. But its average speed will not exceed 6 miles per hour. In three minutes it will overrun the antitank weapon!

What will the antitank weapon be doing? It follows the movements of its target without difficulty since the tank cannot hide and since the antitank weapon usually subtends an arc greater than 1000 yards. On the other hand, the tank is limited in its movements by its mission and by its speed, and has nowhere near this much angular coverage for its

weapons. The antitank weapon now opens fire. From this instant it runs a great danger and the larger the weapon the greater that danger. It is very probable that the weapon will be picked up an instant after it has opened fire—if not by the tank it is firing at, then by one of the neighboring tanks. The tank which has picked up this antitank target immediately opens fire on it with its machine gun and then drives headlong for it at its maximum speed, say 12 miles per hour. The antitank weapon has only a minute and a half in which to conquer! As a matter of fact, it will not even have that much, for its crew will not man it to the last instant as experience in the World War repeatedly proved. For instance, the 13-mm. German antitank rifle in use during the War was capable of penetrating the French Renault at 200 yards, but this weapon proved useless because of the exceptional heroism demanded of its operator. Actually, then, it is not a minute and a half left to this weapon but probably less than a minute.

Thus the duel between the tank and the antitank weapon, which is efficacious at 500 yards, shall last somewhere between one and three minutes. The chance that the lower bracket will hold true increases as the armor of the tank thickens, for this demands a more powerful antitank weapon which will be heavier, more visible, and hence more vulnerable.

This exceedingly small amount of time immediately suggests that an automatic weapon would be preferable to the single shot variety. In three minutes the machine-gun type of weapon, even taking into account laying and relaying on the moving target, should be able to fire 240 rounds, whereas the cannon can only fire from 10 to 30 rounds in the same amount of time under these conditions.

So far we have not considered the respective densities of tanks and antitank weapons in this fight. The largest allotment of antitank weapons is three per battalion. In a defensive position a battalion is normally charged with 1,000 yards of front. If we take into consideration the inevitable disposition in depth, dead space, cover, etc., it appears likely that at any given moment of combat a tank attack will find itself confronted by about one antitank weapon every 500 yards. On the other hand, most foreign countries agree on an average interval of about 100 yards between tanks in the

attack, since we will find 4 or 5 tanks disposed on this same length of front. Therefore it is not a question of the antitank weapon knocking out *one* tank in three minutes but of knocking out four or five.

At this point we may draw two conclusions:

1. Those antitank weapons designed to engage the tank at about 500 yards are capable of inflicting losses on the tanks but are incapable of stopping the attack as a whole. They are also incapable, even though they are unharmed, of laying down a barrage through which a tank cannot pass.

2. Although the duel at the best will last but a short time, the attacking tanks have the means of shortening it still more once they have picked up the antitank weapon. Therefore to increase its efficacy, the weapon considered should be *less visible* (lighter) and should have a more rapid rate of fire.

Let us now consider the case of the tank moving into range of the antitank weapon designed to fight it at 1,000 yards. The problem now changes its aspect and we find that the antitank weapon receives some very worthwhile advantages. Not only does it have twice the time to fire on its adversary but more important still there is little likelihood that it will be picked up at that range by any of the attacking tanks. Thus we see the efficacy of this weapon increases tremendously. Indeed, it might well be almost decisive if the tank-antitank duel took place in a closed field. But this, of course, is not so. This fight between the tank and the antitank weapon is but one phase of battle—there are hundreds of others that all interlock in the struggle. Infantry, artillery, and aviation combined in a vast team. Defensive and offensive fires are all well organized. Their roles are obvious. It is extremely likely that our antitank weapon weighing from 400 to 600 pounds will not long remain invisible to hostile artillery observers or hostile aviation. The probability is that shortly after these weapons open fire they will be neutralized or partially neutralized by hostile artillery. In a word, this weapon and its crew will not sit unmolested and invulnerable many hundreds of yards from the enemy and blithely knock out his tanks. No! It must engage in battle with all battle's attendant risks and seek those chances that come to a skillful and courageous gun crew. To sum up:

This powerful antitank weapon attacking the tank at 1,000 yards and beyond requires that the tank must receive a protection over and beyond that which is capable of furnishing itself through its armor and its weapons.

We are now able to formulate an answer to the first question posed at the beginning of this paper, i.e., what is the relative equilibrium actually existing between the tank and the antitank weapon?

1. Those light, medium, and heavy tanks are now actually in use and that carry from 20 to 25-mm. of armor over their most vulnerable portions do not run an exaggerated danger in the face of the antitank weapons that are now actually in use provided the tank acts in intimate liaison with the other arms.

2. The very light tanks (10 to 15-mm. of armor), which are contemplated largely for security or reconnaissance missions and which must act more or less independently of the other arms, run a much greater danger from the antitank weapon. All that they can hope to do is make the enemy reveal his dispositions by opening fire. If they seek to engage in actual battle in order to make the enemy reveal himself all they do is run to their own destruction.

THE NEAR FUTURE

In most countries efforts are now being made to thicken or increase the resistance of the tank's armor. Greater speed than the tank now enjoys is useless since this speed must be sacrificed at the very moment when the tank is exposed to the greatest danger. Therefore designers have turned from speed and are concentrating on greater protection. But the increase in protection armor cannot go on indefinitely for these reasons:

1. Various technical and tactical considerations such as the limitations of transportation by railway, strength of bridges, etc., limit the admissible tonnage.

2. Those factors which define the power of a tank such as its armor, its armament, and its speed, are definite. The result is that for a certain tonnage a tank must carry a certain armament and be capable of a certain speed; this definitely sets the limit on the maximum amount of armor it can carry.

In light of our present knowledge it appears that the most the designers and engineers can bring about by way of

an increase in armor in the categories we have enumerated is double the present amount unless they are allowed to increase the tonnage and decrease the speed. We may therefore look forward to very light tanks carrying from 20 to 25-mm. of armor and to light, medium, and heavy tanks carrying from 40 to 50-mm.

The problem that this presents to the antitank weapon is difficult but does not appear to be insoluble. Weapons will be designed that can pierce this formidable armor. But in order to attack these tanks at the desirable minimum of 1,000 yards these weapons of the future will certainly have to weigh somewhere from 800 to 1,000 lbs. This means that they will be much heavier and far more visible than the present variety.

In open warfare some of these weapons may be used in the front lines to surprise a tank attack, but in a stabilized or semi-stabilized situation these guns must be moved far back. This will leave the front-line infantryman without any immediate protection! He would receive the impression that he was being sacrificed as a burnt offering to that mechanical monster—the tank. There *must* be some weapon for the front lines. It should be very light, not easily seen, and capable of a high rate of fire. This is a difficult problem. The "Tanksbuchse Solo" (see Table II) is the first technical manifestation in the right direction. But even this weapon fires only single shots and can penetrate only 15 or 16-mm. of armor at 500 yards and 20 to 25-mm. at 200 yards, and this is the most efficacious weapon of this type to make its appearance! One can gather how far we have to go!

Much has been said of the Gerlich rifle and bullet. But even the most optimistic reports speak only of penetrations of 10 or 15-mm. of armor at 500 and 300 yards and then only when the angle of incidence is *normal*.

To sum up, then, it appears that:

1. The present status existing between the tank and the antitank weapon should not, in the near future, change to the detriment of the tank provided that the tank

- (a) Utilizes all technical advances to strengthen its protection;

- (b) And that it fights in close contact with the other arms.

2. On the other hand, the improvements and the increase in antitank weapons will materially increase the risks run by tanks operating independently of the other arms.

THE GERMAN MILITARY DOCTRINE

By Lieutenant R.E. Moore, Infantry

Colonel Altmeyer, in a remarkably clear and systematic account, brings out the character of unity in the German military doctrine from the time of Frederick II up to the present time.

The first part of the article deals with the evolution of German thought since Frederick II. The second part deals with both the principles and the manner of carrying them out as actually taught by the German regulations and authors.

I.—THE EVOLUTION OF GERMAN IDEAS FROM FREDERICK II UP TO THE PRESENT TIME

After the last war, contrary to what happened in Prussia after 1806 and in France after 1870, the German High Command remained faithful to the doctrine with which it began the campaign of 1914.

In spite of the fact that warfare has been highly modernized and that many changes in methods of warfare have taken place, the Germans still remain respectful of the doctrine which they have followed in the past.

This doctrine can be summed up in the four names which Ludendorf cites in his work on the *Conduite de la Guerre*: those of Frederick II, Clausewitz, Moltke, and Schlieffen.

Frederick II.—Before the time of Frederick II, the term "battle" merely signified two parallel forces facing each other.

Frederick adopted a formation in which he engaged the enemy on an extended front with a few of his troops, while with the greater part of his army he tried to outflank or envelop him. For the past 150 years this principle has stuck in the minds of German military men.

Clausewitz in contributing to the German doctrine, deals more in philosophy than in tactics and strategy. The attitude of minds of the German people is largely due to his teachings.

Abstracted from *Revue Militaire Francaise*, July, 1934. "La doctrine militaire allemande," by Colonel Altmeyer.

The three points which he stresses are: the subordination of the military to the political, the necessity for discipline, and the after effects of war.

Moltke maintaining the philosophical foundations of his old teacher, adopts for modern war, although modifying them to the necessary degree, the offensive theories of Frederick and the defensive theories of Clausewitz. He is discreet in tactics and audacious in flanking movements and envelopments. His plan: *umfassen, einschliessen, vernichten*—to outflank, to develop, to destroy, is conceived much more clearly in the sense of a flank maneuver than that of Clausewitz.

Schlieffen pushes to the extreme the philosophical and tactical principles of Frederick and Moltke. His tendency is to establish a purely German doctrine and to get rid of the Napoleonic doctrine as much as possible. He is more concerned with the refinement of battle than with the outcome of the war. His idea is to immediately annihilate the enemy, but he pays no heed to the financial difficulties encountered in doing this.

His strategy and tactics, even more than Moltke's, depend on the flanking action. He believes that the best policy is not to "take the bull by the horns," so to speak, but to wait till he displays his weakness and then strike the death blow in the vulnerable spot. This weakness will always be either on the flanks or in rear.

Among the practical deductions to be drawn from these four theories, the principal ones are as follows:

1. The placing of reserves; they are normally placed behind the flanks where the decisive action must take place.
2. The disposition of the assaulting troops—not in deep columns, but in line with columns of brigades in order to make rapid contact.
3. The use of the advance guard. In offensive tactics, the mission of the advance guard is to give the main body, which they protect, the opportunity to deploy and attack with all their strength.
4. Information. It simply controls the decision which follows it instead of preceding it.

It is with these ideas deeply imbedded in the doctrine of the staff and in the soldiers themselves—*im Fleisch und Blut*—that the German Army entered the World War.

Schlieffen was the teacher of many commanders in the last war: v. Freytag Loringhoven, Stein, v. Kuhl, Groener, Hindenburg, and Ludendorff. In fact in our day, after being temporarily in disfavor after the disasters of 1918, while the "spirit of Weimar" triumphed momentarily, he has regained all the enthusiasm of German military opinion. His spirit hovers anew over the staff office of Berlin. Many works tend to establish the fact that where the German Command succeeded in the last war, as at Tannenberg, it was where it followed his teachings and that where it failed, especially in 1914 and 1916 with Moltke and the younger Falkenhayn, was where it departed from them. The critiques of Schlieffen, his studies on 1806 and 1813, on *War at the present time*, on *The Armies of Millions of Men*, and particularly his *Cannae* and his *Frederick the Great*, are highly recommended to youth.

II.—THE PRESENT IDEAS

Colonel Altmeyer studies, principally in the light of the regulations of 1921 on the conduct and combat of troops of all arms, the present prevailing ideas and their application to offensive and defensive maneuvers.

But first of all he discusses two questions of unusual interest.

It seems to be an established fact that the Germans propose to exploit all the resources of science in its most advanced forms and to adapt their tactics to this knowledge, which means that they will make full use of their aviation as early as the beginning of operations and perhaps even before the beginning of operations.

That they will make intensive use of gas and of camouflage in its most scientific forms.

That they will leave no stone unturned in regard to motorized or mechanized weapons, and in defense against motorized and mechanized weapons.

It is certain that the German regulations and particularly the *German Field Service Regulations* are only correct and applicable if the German Army at the beginning of a war is capable:

Of supplying large bodies of troops (groups of armies, armies, army corps, and divisions in great number) necessary in the war of masses, and of furnishing their troops with modern weapons.

The author examines the four following principal ideas:

1. Morale, especially on the part of the commander. The Germans not only encourage initiative and responsibility, but they insist on the exercise of command, of the respective powers of command, and, in return, certain duties on the part of the commander.

2. The will to increase their mobility and to act offensively.

The German belief is in offensive warfare. This does not mean, however, that the Germans attack always and everywhere; it is contrary to the possibilities of actual warfare, and here the conception of advanced warfare of the school of Schlieffen is somewhat tempered with the experience of the last war. They will know enough to regulate their actions according to the possibilities of approach. They will be more or less provided with reserves and will probably adopt on the fronts where they will not seek a decisive action either an attitude of limited offense or perhaps simply an active attitude.

3. The mission of this offensive attitude, in strategy as in tactics, is to outflank and envelop.

The enemy front is not the object of most attacks. The commander must always try the flanks or rear of their adversaries. The *Schwerpunkt* (center of gravity of an attack) ought to be on the flanks in case of a tactical operation or strategic maneuver. It is there that the power will be concentrated.

4. The will to wage a war of movement, striving towards envelopment, leads to the study of strategical or tactical mobility and of surprise.

The first will be accomplished by a great effort in everything which concerns equipment and instruction, doing away with large bodies of troops and giving power to troops by many means of transportation, improvements made in the organization of railroads, etc.

Surprise will be obtained by the use of craft, especially of camouflage, darkness, and smoke.

The Offensive

The meeting engagement has an air of uncertainty about it. The duty of the commander will be to estimate the enemy disposition immediately and correctly; especially his supposed weakness, in order that he may determine where to place the

force of his attack, which, from what has been said before, he will launch on one flank or even on both flanks in order to outflank and envelop the enemy. He should make his decision as soon as possible in order that he may gain priority in the disposition of his forces and in the attack. The mission of the advance guard will be to gain the necessary time and space for the deployment of the main body. Then it will be more or less reinforced in order to engage the enemy front either by localized attacks or by aggressive feints and thus permit the flanking movement.

In order to obtain this result, it will not become engaged any more than is necessary. This engagement will take place on extended fronts, which will allow the commander to concentrate his forces at the place where the main effort is to be made.

The artillery will go into action rapidly and will lay down heavy fire in the general area of the *Schwerpunkt*. Its entrance into action will be immediately followed by an artillery duel.

Objectives and directions of attack will be learned as soon as possible, and the troops will deploy under cover of the advance guard and with the aid of the artillery as quickly as they are able. Thereafter the artillery will learn from them the objectives and direction of attack.

If the situation can be sized up rapidly, the commander may take advantage of the time gained by systematically assigning the elements of his command to definite zones or areas.

But whether or not he is able to do this, the attack should continue up to and into the zone of infantry fire with the idea of pushing forward as rapidly and as deeply as possible, aided, of course, by the artillery.

In short, the essential thing is to outflank the enemy rapidly and to penetrate deep into his lines in order to take either the front line or reserve elements in flank or in rear. If a regular flanking movement is not possible, then the idea is to use the frontal attack to create flanks.

The Defensive

The rules relative to defensive organization are almost identical to those of the French. However, they call for a few remarks:

The principal line of combat is seldom composed of continuous lines.

Next, the idea of fooling the enemy by camouflage and dissimulation.

The artillery should be strongly echeloned in depth, with some elements pushed far in advance (isolated pieces or sections, independent of the infantry batteries) and with others maintained far in rear as a reserve for the commander.

The Germans consider it advantageous to occupy advanced positions or advanced lines in front of the main line of resistance, which will deceive the enemy as to their intentions and prevent him from making an untimely seizure of the points dominating the approaches to their position.

In the conduct of defensive warfare, the idea of mobility is kept continually in mind, even as regards the subordinate infantry units (combat groups, points of support, etc.) which are not tied down to the ground chosen by them and for which an ever changing position is recommended.

In brief, in comparing the German ideas with those of the French, we notice an identity in the rules and plans as a whole and a difference in the manner of execution. There are three different trends of thought among the Germans, as follows:

That of the constant and systematic use of camouflage, by opposing the enemy from advanced lines, by fake organizations, etc.

The study of dispersion—dispersion of organizations, dispersion of troops: infantry or artillery.

The study of flexibility—by means of variety and mobility (utilization of the mobile defense, of mobile artillery, of mobile infantry around its emplacements).

It is quite clear that such a result can only be obtained by a vigorous and active command which is sure of its troops, and with troops that are perfectly instructed and trained.

Commenting briefly on the German maneuvers of these last few years, Colonel Altmeyer states that they have, as a whole, followed the principles set forth above. They have made an exhaustive study of the war of movement. The cavalry has played an important role for them.

Their maneuvers have taken the form of meeting engagements instead of attacks against an enemy in position. They

have striven continually to outflank and even envelop their adversary.

When one of the two parties is found on the defensive, it is generally seeking to maneuver in retreat, instead of taking up the stationary defense, and even in the course of operations, it seeks by counterattacks to ouflank the adversary.

The most modern weapons (tanks, aviation, gas, smoke, etc.) have always been considered, if not actually represented.

Camouflage in divers forms seems to be used extensively by the army, especially during marches and night attacks.

Colonel Altmeyer concludes that the Germans, bound by their ancient tradition, adapting this tradition to modern tactics, preparing themselves, no doubt, for a war in which the latest developments will be used.

He sees them, emphasizing morale, faithful to the doctrine of the offensive, seeking always to outflank or envelop, and thus striving as much in strategy as in tactics towards mobility and the effect of surprise.

He sees them also, as good disciples of Clausewitz and Moltke, recognizing the right time to take up the defense, making constant use of camouflage, of dispersion in all its forms, and of mobility.

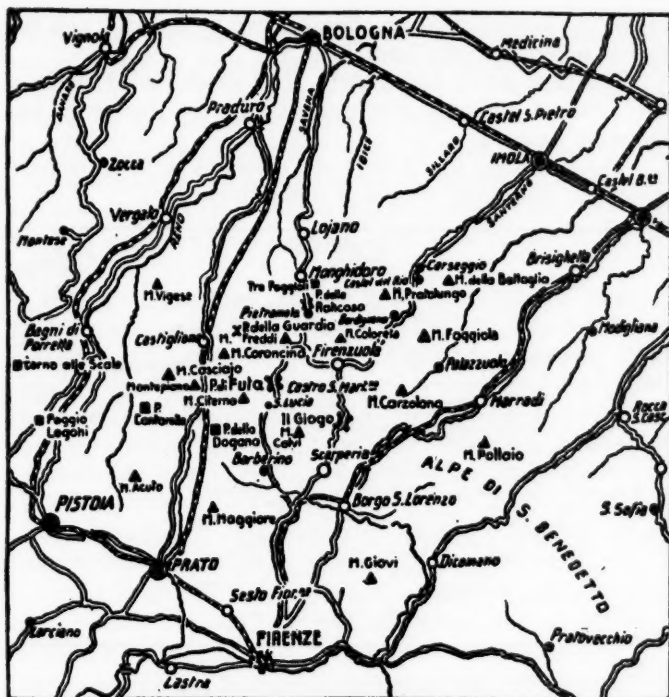
THE ITALIAN ARMY MANEUVERS

By Major F. During, Infantry

From 19 to 24 August, 1934, Italy held its annual maneuvers on a large scale. Mussolini not only called all reservists of the age of 30 to 34 years to the colors, but ordered all ministers and under-secretaries to active duty in their respective grades as reserve officers, and those who held no reserve commissions were detailed with higher staffs, in an advisory capacity. This had an enormous psychological effect on the entire Italian nation.

The maneuver began at midnight, 19 August, and was held in the area: Bologna—Forlì—Monte Scalari—Serravalle, an area which was poor on roads and water. The object of the maneuver was to test whether the present organization of the so-called "fast" division was a suitable one.

Abstracted from *Militär-Wochenblatt*, 11 September, 1934. "Die groszen italienischen Heeresmanöver."



General Grazioli was in charge of the maneuver; General Ajo was in command of the Red and General Foppi in command of the Blue Army, while General De Bono acted as Chief Umpire.

The commander of the Blue Army received the following instructions: "The enemy is assuming the defensive. A certain number of divisions in your front have been identified, others have been reported to be moving towards the front. It is imperative to make full use of our present superiority in order to overcome the Apennin obstacles and to gain the Emilianian Valley. You will attack as soon as possible."

The commander of the Red Army received the following instructions: "It is necessary to take up the defensive temporarily. The Second Army has the mission to stop a possible Blue advance on the southern edge of the Apennin. In case our concentration is completed before that of the Blue

forces, the possibility of an offensive will be tested. You will receive orders for this later."

The Blue Army had 3 corps, 2 of which had 2 divisions and 1 had 3 divisions; the concentration of this army was somewhat delayed.

The Red Army had 2 corps of 2 divisions each; the concentration of this army was well under way.



Aviation was active on both sides; Red had air superiority, however.

Both armies increased their respective outposts during the night, 18-19 August, especially in the vicinity of the mountain passes of La Futa and Il Giogo. In order to gain a better defensive position, Red forces attacked in the vicinity of La Futa, Il Giogo, and between the Santerno and Senio during the early hours of 19 August. The Red 16th Division, supported by the heavy artillery of the VI Corps, made a successful enveloping attack at La Futa. Near Il Giogo the Red attack was unsuccessful, and between the Santerno and the Senio, Blue forces were able to retain several high points.

The Blue commander decided to use his "fast" division. It advanced rapidly through the Sieve Valley, but Red aviation observed the advance and Red attack squadrons, consisting of 60 planes, were ordered to make repeated attacks on the division. Using bombs, gas, and machine guns and flying at times as low as 10 yards, the attack squadrons caused

severe losses, especially on the cavalry of the division. The arrival of a new Blue infantry division during the evening, released the fast division, which withdrew and reorganized. This ended the first day of the maneuver.

[The organization of the "fast" division was as follows: 2 regiments of cavalry, 1 regiment of bicyclists, 1 battalion of black shirts, 1 battalion of horse artillery (light), 1 battalion of horse artillery (heavy), and 1 communications detachment.]

On 20 August Red aviation was very active and bombed the railroad station at Florence. Red also organized and strengthened its present position. During the night, 19-20 August, Blue brought strong reinforcements to the front. The Blue 18th Division having detrucked at the Sieve, moved to the vicinity of Il Giogo. The "fast" division, in conjunction with the Blue 20th Division and corps troops of the Blue I Corps, attacked the Red position at La Futa.

The maneuver was called off at noon and the "fast" division was withdrawn at night.

21 August was used by both armies for re-grouping of forces. Blue prepared for an attack, while Red strengthened its defense. Aviation bombed Bologna and Florence.

On 22 August the maneuver continued. An attack east of the Reno by the Red forces was repulsed. The Blue I Corps was able to penetrate the Red defenses in the Setta Valley. In the Santerno Valley the Blue VII Corps was successful in forcing Red to withdraw. This corps attacked under cover of smoke. The Blue commander decided to press the attack in the center and use the "fast" division to maneuver around the enemy's left flank. The maneuver continued throughout the night, during which time Red improved its position and Blue brought reinforcements to the front, and at dawn, 23 August, Blue forces attacked along the entire line. In the Setta Valley the Blue I Corps advanced successfully. The Blue VII Corps was held back by Red counterattacks. At Pietramala, Blue, using fast combat cars, drove the Reds back.

Red aviation made day and night raids on Florence and bombarded the railroad station, causing much damage to Blue lines of communication.

The attack continued throughout the night on a 50-mile front. The Red forces were able to regain their position in the Setta Valley.

At midnight, 23-24 August, two Blue corps pressed the Red center hard and were able to cause a break in the Red front. The Blue "fast" division was sent at once into the gap, but a well-prepared counterattack by the Red forces stopped the success of the Blues and closed the gap with reserves.

The maneuver, which was called off at 9:10 AM, 24 August, ended in a stalemate.

The article closes with the following remark: "The infantry is still the arm which carries the brunt of the fighting. It has continuous and decisive missions. Therefore, it must be improved, better equipped, and above all it should receive the best of manpower, the best officer matériel, and the best enlisted men must be given to the infantry. In order to permit the infantry to fulfill its mission, cooperation of all arms with the infantry is essential."

Section 3

DIRECTORY OF PERIODICALS

Included in this directory are only those periodicals from which articles have been selected.

See also, Section 8, "List of Periodicals Indexed and Key to Abbreviations."

MILITARY AND NAVAL PERIODICALS

	Page
Joint Forces	
Army and Navy Journal.....	95
Army and Navy Register.....	96
Army, Navy and Air Force Gazette (Great Britain).....	97
Fighting Forces (Great Britain).....	105
Journal of the Royal United Service Institution (Great Britain).....	106
Journal of the United Service Institution of India (Great Britain—India).....	107
Revista del Ejercito y de la Marina (Mexico).....	121

General Military	
Army Quarterly (Great Britain).....	97
Bulletin Belge des Sciences Militaires (Belgium).....	98
Canadian Defense Quarterly (Canada).....	102
Esercito e Nazione (Italy).....	103
Militärwissenschaftliche Mitteilungen (Austria).....	107
Militär-Wochenblatt (Germany).....	109
Revue Militaire Francaise (France).....	130
Sanct Christophorus (Germany).....	133
Wissen und Wehr (Germany).....	138

Arms and Services

AIR ARM	
Revue de l'Armée de l'Air (France).....	123
Royal Air Force Quarterly (Great Britain).....	132

ARTILLERY	
Coast Artillery Journal.....	103
Field Artillery Journal.....	105
Journal of the Royal Artillery (Great Britain).....	106
Revue d'Artillerie (France).....	124
Rivista di Artiglieria e Genio (Italy).....	131
Wehr und Waffen (Germany).....	135

CAVALRY	
Cavalry Journal.....	103
Cavalry Journal (Great Britain).....	103
Revue de Cavalerie (France).....	126

ENGINEERS	
Military Engineer.....	117
Pioniere (Germany).....	118

Revue du Génie Militaire (France).....	129
Rivista di Artiglieria e Genio (Italy).....	131
Royal Engineers Journal (Great Britain).....	132
INFANTRY	
Infantry Journal.....	105
Revue d'Infanterie (France).....	128
MEDICAL	
Military Surgeon.....	117
ORDNANCE	
Army Ordnance.....	97
QUARTERMASTER	
Quartermaster Review.....	121
Royal Army Service Corps Quarterly (Great Britain).....	132
SIGNALS	
Signal Corps Bulletin.....	134
TANKS	
Royal Tank Corps Journal (Great Britain).....	132
Navy and Marines	
Marine Corps Gazette.....	107
Naval Institute Proceedings.....	118
GENERAL PERIODICALS	
Foreign Policy Association: Foreign Policy Reports.....	139

Section 4

CATALOG OF SELECTED PERIODICAL ARTICLES

This section catalogs the articles selected from Library periodicals for the current quarter. Periodicals in this Catalog are arranged alphabetically.

ARMY AND NAVY JOURNAL

3 November 1934

- (1) PAY RESTORATION SEEN—URGE LONGEVITY RETURN

10 November 1934

- (2) LONGEVITY PAY RETURN LIKELY IN 1936 BUDGET

17 November 1934

- (3) MORE NAVAL AIR BASES AND DIRIGIBLES SOUGHT
- (4) REORGANIZATION OF FIELD ARTILLERY

24 November 1934

- (5) ARMY PAPER WORK CUT BY CONDENSED MANUAL
- (6) SHOW NEW ARMY TANK

1 December 1934

- (7) ADMINISTRATION EXPLAINS WIDOWS' PENSION LAWS
- (8) NAVAL VIEWS UNIVERSAL AVIATION TRAINING PLAN
- (9) EXPAND FT. KNOX MECHANIZATION
- (10) CWS IN INFANTRY DIVISION HEADQUARTERS

8 December 1934

- (11) ARMY WAR COLLEGE POLICY
- (12) UPHOLDS MILITARY TRAINING

15 December 1934

- (13) PENSIONS FOR WIDOWS

22 December 1934

- (14) TRAINING BOARD REPORTS; SHORTEN C. & G.S. COURSE
- (15) SECRETARY DERN'S REPORT

29 December 1934

- (16) CONGRESS GETS REPORT ON ARMY INVESTIGATION
- (17) ARMY INCREASE URGED BY GENERAL MACARTHUR
- (18) ARMY MUNITIONS VIEWS
- (19) GENERAL HEADQUARTERS AIR FORCE
- (20) BRITISH ARMY MECHANIZATION

5 January 1935

- (21) NEW CONGRESS FACING PROBLEMS OF DEFENSE
- (22) FLIGHT PAY RECOMMENDATIONS
- (23) DANGER OF ARMS NATIONALIZATION

12 January 1935

- (24) SERVICE PAY RESTORATION
- (25) ESTIMATES FOR DEFENSE SHOW MARKED INCREASE
- (26) EXPLAIN ARMY BUDGET
- (27) GHQ AIR FORCE

19 January 1935

- (28) ARMY REVISES POLICIES GOVERNING AIR OFFICERS
- (29) ARMY AIR MAIL COST
- (30) MOBILIZATION TRAINING

26 January 1935

- (31) PLAN CADET INCREASE TO STRENGTHEN ARMY
- (32) WHITE HOUSE APPROVES ARMY PROMOTION BILL
- (33) NATIONAL GUARD INCREASE

ARMY AND NAVY REGISTER

3 November 1934

- (1) TESTING ARMY TRAINING SCHEDULES
- (2) WORLD ARMAMENTS INCREASE

10 November 1934

- (3) NAVY AN EMBLEM OF PEACE

17 November 1934

- (4) DENOUNCES RADICALS
- (5) ORGANIZATION OF FIELD ARTILLERY UNITS
- (6) NAVAL AERIAL PHOTOGRAPHY

24 November 1934

- (7) NEW ARMY TANK
- (8) ADJUSTED SERVICE CERTIFICATES

1 December 1934

- (9) AGE-IN-GRADE RESERVE OFFICERS
- (10) WHAT NATIONAL DEFENSE MEANS
- (11) QUARTERMASTER MOBILIZATION

8 December 1934

- (12) SECRETARY OF NAVY'S REPORT
- (13) THE ARMY WAR COLLEGE
- (14) MILITARY TRAINING UPHELD
- (15) NATIONAL POLICY ON AVIATION

15 December 1934

- (16) THE CHIEF OF STAFF
- (17) NAVY ANNUAL REPORTS

22 December 1934

- (18) ARMY TRAINING METHODS
- (19) REPORT OF SECRETARY OF WAR

29 December 1934

- (20) GENERAL HEADQUARTERS AIR FORCE
- (21) GENERAL MACARTHUR'S ANNUAL REPORT
- (22) NATIONALIZING MUNITIONS PLANTS

5 January 1935

- (23) WAR DEPARTMENT INVESTIGATION
- (24) CHIEF OF BUREAU OF NAVIGATION

12 January 1935

- (25) PAY RESTORATION OPPOSED
- (26) ARMY-NAVY BUDGET ESTIMATES

19 January 1935

- (27) MOBILIZATION TRAINING
- (28) TEMPORARY ARMY EXPANSION PROPOSED
- (29) THE DANGEROUS ENEMY OF PEACE

26 January 1935

- (30) ARMY PROMOTION PLAN
- (31) NAVY BUILDING PROGRAM

ARMY, NAVY AND AIR FORCE GAZETTE (Great Britain)

1 November 1934

- (1) THE ROOT OF WAR. Brailsford

8 November 1934

- (2) ROBERT E. LEE. Major-General Fuller
(3) GERMAN ANTI-AIR ARCHITECTURE. Major Murphy

22 November 1934

- (4) AUSTRIA'S ARMED FORCES AND THOSE OF HER NEIGHBOURS. Lieutenant Mast, Late Austrian Regular Army

29 November 1934

- (5) OUR ARTILLERY RACKET. Major-General Fuller
(6) WILL JAPAN FIGHT?
(7) THE CAMPAIGN IN THE HEJAZ. (I) Captain Liddell Hart

6 December 1934

- (8) GENERAL SIR JOHN FRENCH ON SEPTEMBER 4TH
(9) THE ARAB CAMPAIGN. (II) FROM AKABA TO DAMASCUS. Captain Liddell Hart

13 December 1934

- (10) THE ARAB REVOLT. REPLY TO CRITICISM. (I) Major Bray
(11) OFFICERS' WINTER TRAINING IN CANADA

20 December 1934

- (12) THE FRENCH VIEW OF SEPTEMBER 4TH, 1914. Colonel Grasset, French Army
(13) FINANCE AND THE FIGHTING FORCES. Major Douglas

27 December 1934

- (14) THE CHACO WAR. Lindsay

3 January 1935

- (15) GERMAN RETREAT OF SEPTEMBER 7, 1914. Colonel Grasset
(16) AMERICA'S GREATEST SOLDIER. Major-General Fuller

ARMY ORDNANCE

November-December 1934

- (1) HOW INDUSTRY ARMED FOR DEFENSE. Major Marsh
(2) TANKS IN THE GRAN CHACO. Lieutenant Icks
(3) A CHRONICLE OF ORDNANCE. II. THE STORY OF BARBED WIRE AND MACHINE GUNS. Lieut. Colonel Simons
(4) SUPERVISION OF THE TRADE IN ARMS. AMERICAN DELEGATION'S REPORT ON THE INTERNATIONAL CONVENTION. Report by Honorable T.E. Burton
(5) DEMOCRACY AND THE GENERAL. PUBLIC POLICY AND THE ART OF COMMAND. Captain Erwin
(6) WAR—GRIM WAR! TERMITE CONTROL AT AN ORDNANCE STORAGE DEPOT. Captain Meek
(7) THE GREAT PACIFIST HOAX. ENFORCEMENT OF PROHIBITION AND DISARMAMENT COMPARED. Linn
(8) FACTS ABOUT MUNITION MAKERS. (IV) An Editorial

ARMY QUARTERLY (Great Britain)

January 1935

- (1) THE FRENCH OFFICIAL HISTORY. MARCH-APRIL, 1918
(2) THE COOPERATION OF TANKS WITH THE OTHER ARMS AT THE BATTLE OF CAMBRAI, NOVEMBER, 1917. Part II. Major-General De Pree
(3) THE ORIGIN OF EXISTING BRITISH REGIMENTS AND CORPS. Major Edwards

(4) MILITARY OPERATIONS IN DAGHESTAN, 1917-1921. Part II. Allen

(5) A STUDY IN MOBILITY IN THE AMERICAN CIVIL WAR. Major-General Fuller

(6) FROM THE MARNE TO THE AISNE. THE DIARY OF AN INFANTRY SUBALTERN. Captain Synge

(7) WHAT THE ALLIES KNEW OF THE GERMAN MILITARY PLAN BEFORE THE OUTBREAK OF THE GREAT WAR. Major-General Chernavin

(8) "THE OTHER SIDE OF THE HILL." No. XIV. THE FIGHT FOR INVERNESS COPSE: 22ND-24TH OF AUGUST, 1917

(9) THE SAAR. Headlam-Morley

(10) CAPORETTO. COMMENTS OF AN ITALIAN MARSHAL

(11) MILITARY HISTORY AND GENERAL HISTORY. Nickerson

(12) MODERN ROADMAKING AND THE NEEDS OF THE ARMY IN THE FIELD. Captain Singer

(13) TANKS AND FLANKS. Lieut.-Colonel Hudson

BULLETIN BELGE DES SCIENCES MILITAIRES (Belgium)

By First Lieutenant J.I. Greene, Infantry

July 1934

(1) PAGES D'HISTOIRE DE L'ARMÉE BELGE AU COURS DE LA GUERRE 1914-1918.—LES PIONNIERS-PONTONNIERS CYCLISTES AU COURS DE LA 2^E SORTIE D'ANVERS, EN SEPTEMBRE 1914. [History of the Belgian Army in the World War.—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914.] Lieutenant Gilmont

A new and somewhat experimental engineer unit organized in December 1913, the Belgian Cyclist Pioneer Company, found itself, at the declaration of war, just receiving its organic equipment—one new bicycle and one kilogram of tonite explosive per man, and material for two spans of upright bridging capable of supporting light artillery, for the company. The bridging materials were carried in a 3½-ton truck. The company consisted of three two-section platoons, which totalled 4 officers, 22 noncommissioned officers, and 191 enlisted men.

The article is a day by day account of the work and engagements of the unit from 9 through 13 September, 1914, during which time it built two bridges, destroyed a number of others, and took part in several fights. The only conclusion of the author is that engineers must know how to fight as well as build bridges and destroy them.

(2) LES OPÉRATIONS MILITAIRES À LA FRONTIÈRE EST DE LA PROVINCE ORIENTALE PENDANT LA GUERRE 1914-1918. [Military operations on the eastern frontier of the Belgian Congo during the World War.] (II) Lieutenant Bayot

The second installment of this account of the Congo campaigns.

At Rushomba on 27 November, 1914, a force of 300 Belgian troops repulsed a landing attempt on the western shore of Lake Kivu by 500 Germans and Watusis from a fleet of 100 canoes. The canoes were escorted by two heavy whale boats and by a motorboat mounting a machine gun. But the fire from shore, opened at 600 meters, was so hot that the enemy gave up after two attempts.

German East African detachments entered Belgian territory several times during the remainder of 1914 but no major engagements occurred. In December, Lieutenant Löcken with 147 men, while protecting the passage of a commercial caravan, drove back a force of 5 Germans, 100 native troops, and several unorganized bands of natives, near Binei, with the loss of one man.

It was fortunate, the author says, that the greater part of the force in German East Africa was directed against neighboring British colonies, rather than the Belgian Congo. The Belgian force was very small at first, and had an extremely difficult time merely defending. By November, however, it reached 2,000 effectives, which was enough to defend the

border successfully. Minor actions occurred at Chahafi (1 January, 1915), at Iko Island, Lake Kivu (4-5 January), and at Luvungi (12 January), in all of which the German-led forces were defeated.

The hard fighting and rapid marches of the Belgian force apparently deceived von Lettow-Vorbeck, the German commander, whose estimate of the Belgian strength was high.

(3) COMMENT ON FRANCHIT LES GRAND RIVIÈRES. [How wide rivers are crossed.] Major General Pierard, Retired

Rivers must be crossed on a broad front in order to keep the enemy guessing where the main passage is to be made. If possible, points of passage should be on a reentrant of the river toward the attacking force permitting concentration of fire and the establishment of a first foothold, protected on both flanks by the river.

The author recommends simultaneous passage by boat (the boats used by the Belgian army for this carry 20 men) at 50-pace intervals. By a detailed discussion of currents and crossing schedules, he also concludes that a battalion can cross a 450-yard stream in two boats in 2 hours, when the current does not exceed 4 miles per hour.

Once a bridgehead is established, a bridge should be built. The covering force must be continually increased in strength while the bridge is under way.

The French state that 48 boats are necessary in each infantry division as equipment for the crossing of the covering force.

(4) APERCU SUR LA CAVALERIE ALLEMANDE. [Survey of the German cavalry.] (II) Lieutenant Dinjeart

Conclusion of a detailed outline of the German cavalry possibilities of the present day.

Germany now has 3,500,000 horses, as many as she had in 1914, not counting lost territory. Since the War, measures have been taken to increase horses. Hitler is not only the savior of Germany but of the German horse. The type of animal now used in the army has been bred for endurance and is capable of 30 to 35 miles a day.

The article outlines cavalry instruction and schools, stream crossing, the work of mounted pioneers, and cavalry combat principles, and concludes with a number of quotations of opinions by leading German officers on the question of motors versus animals. General von Seeckt says that chauffeurs have by no means replaced troopers, and that both are needed. General von Groener agrees, and so does General Brandt. There are no opinions to the contrary quoted.

(5) OBSERVATION UNILATÉRALE. DÉTERMINATION DES ÉLÉMENTS DE TIR. [Unilateral observation. Determination of firing factors.] Lieutenant de Moor

This is a mathematical analysis of the comparative accuracy of artillery fire for adjustment and fire from map data. The author's point of departure is: "The position of the observer or the target not being accurately known, which method is the better for getting on the target." He finds: If the error of the calculated map data is greater than 20 per cent, fire for adjustment is preferable.

(6) APPAREILS PERMETTANT LE TIR RÉDUIT INSTANTANÉ ET LE TIR RÉDUIT SUR SILHOUETTE. [Equipment for reduced-charge firing at disappearing and silhouette targets.] Lieutenants Durant and Olivier

Two simple target stands for indoor or short-range firing.

(7) LE COMBAT DÉFENSIF DES PETITES UNITÉS D'INFANTERIE EN COUVERTURE. [Defensive combat of small infantry units.] Lieut.-Colonel Veleco and Captain Ion

Abstracted from the February-March, 1934, issue of "Revista Infanteriei" (Rumania).

The authors study the problem of defending an extended front with few troops. They first analyze the usual methods of defense and then decide that none of them are applicable when a single division must cover a front of 12 to 15 miles. For this situation they offer the following solu-

tion: (a) A line of groups of various sizes covering important roads and railroads along the frontier; (b) Behind these nuclear defensive units, a reserve force concentrated on the main axis of the hostile attack; (c) Decentralization of command, by dividing the defensive zone into sectors, each of which contains a detachment of all arms. These detachments employ delaying action. Coordination is secured by establishing successive lines of resistance. The intervals between detachments are covered by observation, and where possible, by fire; (d) Systematic demolitions.

The authors then discuss the conduct of a small infantry unit acting as a border defense detachment, in two situations: (a) On an open frontier, and (b) on a frontier consisting of a large river.

(8) PARALLÈLE ENTRE LES PROCÉDÉS DÉFENSIFS FRANÇAIS ET ALLEMANDS. [Comparison of French and German defense methods.]

Abstracted from "Deutsche Wehr," 9 May, 1934.

French and German methods of defense differ only in details. The French have a tendency toward centralization, higher units making plans for the lower, which extend to the smallest detail. This multiplies prescribing orders and endangers initiative.

French regulations also go farther than the German in defining the different echelons and subdivisions of defensive dispositions. In depth they prescribe "a line of principal resistance," a "support line," and a "line of arrest"; whereas the Germans use only the term "main line of combat," which signifies a line across the front through the forward edges of the positions occupied by the leading combat elements.

In prescribing the width of front for a given unit, the Germans avoid numerical designation, the extent of the front of a unit depending on the terrain, the size of the force, etc. On the contrary, the French stress particularly the maximum front: 55 yards for the squad, 165 yards for the platoon, 450 for the company, 1,000 for the battalion. In addition, each commander up to include the battalion fixes the depth of the unit next below.

In both armies the conduct of defensive combat is characterized by putting into effect a plan of carefully organized fires. Here too, French regulations are more rigid and give more attention to detail than the German.

French regulations on outposts assign them two missions: to resist in place for a limited time, or until the means of fighting are exhausted; and, to withdraw, reporting the action taken. German conduct of outposts is based on the principles of delaying action.

Orders for withdrawal as outlined in French regulations are not practicable. The hour of withdrawal, and the direction and route are all specified. In actuality, outposts will either hold out too long, and be overwhelmed, or else will withdraw prematurely.

The fundamental difference between the French and German conception of the defensive is due to the psychological difference of the two peoples. The French, because of their geographical situation, have always been masters of the defensive. Hence, they refuse to associate any idea, of the offensive in the defense. "No change of position will be made except to drive back hostile elements that have escaped our fire, or to capture them," says article 275, "French Infantry Combat Regulations." Except in the instances specified, the attitude is purely defensive. The only thing desired is to hold the enemy at a distance from the position.

The Germans, on the contrary, manifest even in the defense, their innate preference for the attack. They are continually preoccupied in associating an offensive action in the defense, with a view to completely defeating the enemy.

(The author seems to interpret French regulations too narrowly. Article 2, of the same regulations referred to, directs plainly that at opportune times, counterattacks will be made.—EDITOR)

(9) CE QUE DEVRAIT ÊTRE UN RÉGIMENT D'INFANTERIE. [What an infantry regiment should consist of.]

Abstracted from the February, 1934, number of "Revista de Estudios militares" (Spain).

Each battalion should have one machine-gun company. This company would employ its guns only in fire by direct laying. There should be a regimental machine-gun company, containing two 4-gun sections especially trained in fire by indirect laying, and one 4-gun section with special training for antiaircraft fire. Each battalion should have two heavy mortars.

August 1934

(10) PAGES D'HISTOIRE DE L'ARMÉE BELGE AU COURS DE LA GUERRE 1914-1918.—L'ATTAQUE DE L'ABRI DE CRAONNE EN AOÛT 1918, PAR LE 1ER BATAILLON DU 4E RÉGIMENT DE LIGNE. [History of the Belgian Army in the World War.—The attack of the machine-gun nest at Craonne Farm in August, 1918, by the 1st Battalion, 4th Line Regiment.] Lieut.-Colonel Bonnevie

A personal experience monograph describing in great detail the capture of a German machine-gun position by four Belgian companies.

(11) PRINCIPES GÉNÉRAUX D'ORGANISATION DES TROUPES COLONIALES. [General principles of the organization of colonial units.] (I) Lieut.-Colonel Jodot

The forming of native units and including them as part of the Regular establishment is an excellent thing, says the author, except among races that have long-established, fixed social castes. Native recruits are hard to get, however, because they fear the harsh discipline. Once they have served an enlistment or two, black soldiers, especially, are proud of their service and consider themselves above other natives. The period of recruit training must be longer than for European troops.

Quick-tempered officers are not suitable for the command of native units. Much patience is necessary in handling and training them.

The writer also compares the French and British methods of assigning officers to foreign service with the Belgian method. The Belgian foreign service is a special case. There are few foreign units, and all of them are stationed in an equatorial climate. The present period of foreign service is too long (14 years with four leaves of absence of 6 months).

(12) TRANSPORTS PAR AUTOMOBILES. [Automotive transportation.] Major Gilbert

An illustrative problem in logistics, complete with charts and tables, involving the movement of two infantry divisions.

(13) EMPLOI DES M. DANS LA DÉFENSIVE. [The use of machine guns in the defense.] Major Collard

In a front-line division, the machine-gun companies of the reserve battalions and the division machine-gun battalion, together give the second echelon of the division 60 machine guns for its defensive organization. These can be used to place barrages either in front of the second echelon or the first, or can be given special fire missions to the flanks of the second echelon. The author discusses at some length the correct technique for all three possibilities.

(14) CAS D'EMPLOI DES M. DU DEUXIÈME ÉCHELON D'UNE POSITION DÉFENSIVE. [The use of second-echelon machine guns in the defense.] Lieut.-Colonel Mirsch

A concurrence on the preceding article, in which the writer further discusses a special case.

(15) ESSAIS COMPARATIFS DE POSTES D'ÉCOUTE DE D. T. C. A. [Comparative experiments of antiaircraft listening methods.] Lieutenant Rosart

Tests were made with the unaided ear and with different listening devices. By ear alone the average error of a number of listeners in estimating the direction of approach was only 20 miles. The seven devices tested varied from 4 to 8 miles in error.

(16) DÉTERMINATION DES ZONES DE SÉCURITÉ. [The determination of the degree of defilade.] Lieutenant de Moor

A technical study of the amount of protection given by terrain features of various shapes.

September 1934

(17) PAGES D'HISTOIRE DE L'ARMÉE BELGE AU COURS DE LA GUERRE 1914-1918.—COMBAT DE BUDINGEN, D.C. BELGE, 18 AOÛT 1914. [History of the Belgian Army in the World War.—The battle of Budingen, 18 August, 1914.] Lieut.-Colonel d'Ardoye

This is a personal narrative of the fighting in and around Budingen on 18 August, 1914, between units of the Belgian Cavalry Division, and von Kluck's invading vanguard. The mission of the Belgian cavalry at the time was to cover the main Belgian force by reconnoitering to the east of the Gette and north of the Demer rivers. One squadron of the 2d Guide Regiment attempted to hold the crossings of the Grande Gette just east of Budingen. The Germans, however, were able to cross the bridge in a column of squads while under fire; and the Belgian cavalry retired promptly.

(18) PRINCIPES GÉNÉRAUX D'ORGANISATION DES TROUPES COLONIALES. [General principles governing the organization of colonial units.] (II) Lieut.-Colonel Jadot

The second and concluding part of this article. The author continues his comparison of French, British, and Belgian colonial methods, with special emphasis on the difference between the last and the first two. "If great nations," he concludes, "must spend so much effort in protecting their distant possessions, how important it is, then, for a small one to make the sacrifice necessary to accomplish the same end. For the facts show that if a small nation is resolved to make its rights respected by all, it must especially enforce those rights in its colonial domain."

(19) LE PELOTON EN GRAND-GARDE. [The platoon as an outpost.] Captain Vermandel

An illustrative problem.

(20) CONSIDÉRATIONS SUR LA NOUVELLE INSTRUCTION (FRANÇAISE) POUR LES UNITÉS DE MITRAILLEUSES D'INFANTERIE. [A consideration of the new French regulations for infantry machine-gun units.] Lieut.-Colonel Mersch

This article is simply a digest of the new French regulation, and contains no discussion or comment, except to note the application of the regulations to Belgian units.

(21) LES ARMÉES FRANÇAISES DANS LA GRANDE GUERRE. TOME V, 1ER VOLUME. [The French armies in the World War, Tome V, Volume I.]

A review of Tome V, Volume I, of the French official history.

(22) UN MOYEN GRAPHIQUE DE DÉTERMINATION DES ÉCHELONS DE PORTÉE ET DE DIRECTION, ET DES RAPPORTS DE RÉDUCTION EMPLOYÉS DANS LES MÉTHODES D'OBSERVATION FAIBLEMENT ET FORTEMENT LATÉRAUX. [A graphical method for finding ranges, deflections, and reduction ratios used with close-in and distant lateral observation.] Lieutenant Darimont

(23) NOTE SUR LE MODE DE RÉSISTANCE DES CONSTRUCTIONS BÉTONNÉES AUX MOYENS DE DESTRUCTION. [How reinforced concrete resists various means of destruction.] Lieutenant General Ver Eecke, Retired

CANADIAN DEFENCE QUARTERLY (Canada)

January 1935

- (1) THE INTERNATIONAL OUTLOOK. General Smuts
- (2) THE EFFICIENCY OF AN ARMY DEPENDS UPON THE EFFICIENCY OF ITS LEADERS. (Prize Essay, 1934) Major Lisle
- (3) THE STRATEGIST'S MIND. Lieut.-Colonel Baird-Smith
- (4) CAPTAIN VANCOUVER. HIS WORK ON THE PACIFIC COAST. Lieut. Commander Houghton
- (5) CANADA AND IMPERIAL DEFENCE
- (6) THE CAUSES OF WAR. McKay
- (7) SEA POWER AND THE PACIFIC PROBLEM. By the Editor

CAVALRY JOURNAL

November-December 1934

- (1) MODERN CAVALRY: MISSIONS OF ARMY CAVALRY. (II) General-leutnant Brandt, German Army
- (2) FIELD EXERCISES AND PRACTICE MARCH, 1ST SQUADRON, 3RD CAVALRY
- (3) THE INDIAN CAVALRY. Captain Shea
- (4) THE CAVALRY PARTICIPATION IN THE THIRD CORPS AREA MANEUVERS. Captain Allen, Jr.
- (5) STRATOSPHERE CAVALRY. Lieutenants Land and Stodter
- (6) ADDRESS OF SECRETARY DERN
- (7) HITCHING THE INFANTRY-ARTILLERY TEAM FOR ATTACK. Captain Case
- (8) AN EARLY TREATISE ON CAVALRY. Lieut. Colonel Spaulding
- (9) WILL IT HAPPEN AGAIN? Part I. Major Boyd

CAVALRY JOURNAL (Great Britain)

January 1935

- (1) THE CAVALRY IN FRANCE, AUGUST-NOVEMBER, 1918. Part IV. Lieut.-Colonel Preston
- (2) TACTICAL EMPLOYMENT OF LIGHT TANKS WITH THE ARMY IN INDIA. Major Bendle
- (3) CAVALRY BATTLE HONOURS. Atkinson and Major Stacke
- (4) THE CITY AND COUNTRY OF HANOVER IN THE HISTORY OF GERMAN CAVALRY
- (5) MODERN CAVALRY HEAD-DRESSES. Part IV. Lieut.-Colonel Ryan

COAST ARTILLERY JOURNAL

November-December 1934

- (1) THE SIEGE OF TSINGTAU. Captain Smith
- (2) EXTRACTS FROM AN ADDRESS DELIVERED BY MAJOR GENERAL WILLIAM F. HASE
- (3) THE PRINCIPAL PROBLEMS IN ORGANIZING AND CONDUCTING JOINT OPERATIONS OF THE ARMY AND NAVY. Captain Whittaker
- (4) FIRE ADJUSTMENT. Captain Davis
- (5) DUTIES OF AN ADJUTANT. Captain Conable
- (6) ADDRESS OF SECRETARY DERN
- (7) WILL IT HAPPEN AGAIN? Part I. Major Boyd
- (8) OFFSETTING THE ANGULAR TRAVEL DIRECTOR. Lieutenant Edwards

January-February 1935

- (9) RHODES AND MORALE IN COAST DEFENSE. Pratt
- (10) ARE SOLDIERS MILITARISTS? Colonel Vestal
- (11) CHEMICALS—HOW, WHEN AND WHERE? Captain Fisher
- (12) A CPX TRUCK. Lieutenant Bowman
- (13) FIRE ADJUSTMENT. Captain Davis
- (14) DOUBLING THE EFFICIENCY OF THE C.A. RESERVE. Major Haw
- (15) WILL IT HAPPEN AGAIN? Part II. Major Boyd
- (16) SUMMARY OF REPORTS ON THE JOINT ANTIAIRCRAFT-AIR CORPS EXERCISES HELD AT FORT KNOX
- (17) RESERVE POLICIES AND NATIONAL DEFENSE. Lieut. Colonel Hill

ESERCITO E NAZIONE (Italy)

By First Lieutenant M.D. Taylor, Field Artillery

July 1934

- (1) LA NUOVA LINEA FORTIFICATA FRANCESE. [The new line of French fortifications.] Cardona

A general description of the fortified belt along the eastern frontier of France. The author finds the following advantages in this defensive system: (a) The small size of the targets offered to the enemy artillery;

(b) The vast number of these small targets which will cause a dispersion of the enemy's fire; (c) Powerful fire effects from the interlocking fire of many automatic weapons; (d) The mutually supporting character of the defensive works; (e) The use of long-range artillery protected by the fortified belt; (f) The organization of a road net favorable to maneuver by the defender.

(2) NOTE SU LA CONTROBATTERIA. [Notes on counterbattery.] Paterni

The author raises the question as to whether the counterbattery methods of stabilized warfare hold good for open warfare situations. He concludes that they do in general; that certainly there should be no tendency toward giving counterbattery responsibility to divisions rather than to the corps. Also he suggests the desirability of using bombardment aviation on certain counterbattery missions.

(3) L'IPRITE, AGGRESSIVO DI GUERRA. [Mustard gas, an offensive agent of war.] Murer

This study concerns itself particularly with methods of demustardizing areas and localities.

(4) UN GRUPPO DI SQUADRONI NELLA RIPRESA DI CONTATTO. [Several troops of cavalry in a reestablishment of contact.] Zavattari

A tactical problem in the use of a division reconnaissance detachment.

(5) ECONOMIA AGRICOLA E APPROVVIGIONAMENTI IN GUERRA. [Agrarian economy and supply in war.] Serra

(6) LA TRASMISSIONE DELLE IMMAGINI DAGLI AEREI. [The transmission of images from airplanes.] Cuocolo

A discussion of the military possibilities of television.

August-September 1934

(7) IL DISCORSO DEL DUCE AGLI UFFICIALI. [Mussolini's address to the officers of the army.]

(8) NOTE SU LE GRANDI MANOVRE D'AGOSTO. [Notes on the general maneuvers of August.] Baldini

(9) IL MOVIMENTO DELLE MASSE. [Movement of large bodies of troops.] Cardona

A very general discussion of the principles involved in the movement of large units.

(10) LE NUOVE NAVI DA BATTAGLIA ITALIANE. [The new Italian battleships.] Fea

(11) LA LINEA DI RESISTENZA NEL SISTEMA DIFENSIVO. [The main line of resistance of a defensive position.] Ferreri

(12) ALLE FRONTIERE SUD-ORIENTALI DELLA LIBIA. [On the southeastern frontier of Lybia.] Bernasconi

(13) TRUPPE CELERI NELL'ESPLORAZIONE VICINA. [Division reconnaissance detachments in close-in reconnaissance.] Armando

(14) I SERVIZI NEL BATTAGLIONE BERSAGLIERI. [The service of supply and evacuation in a cyclist battalion.] Trillini

(15) LA ORGANIZZAZIONE DELLE NAZIONI PER LA GUERRA—VIII. LA POLONIA. [Poland's organization for war.] Franchini

A study in military geography.

(16) RIVALUTARE ADUA (1^o MARZO 1896). [A new estimate of the battle of Adua.] Ravenni

(17) IL REGGIMENTO "REAL MACEDONE" ALLA BATTAGLIA DI VELLETRI (10 AGOSTO 1744). [The Royal Macedonian Regiment at the battle of Velletri, 10 August, 1744.]

(18) IL PRINCIPE EUGENIO DI SAVOIA (1663-1736). [Prince Eugene of Savoy, 1633-1736.] Rinaudo

(19) CARTOGRAFIA FRANCESE. [The French system of maps.] Verniani

During the War, the French found that the 1:80,000 General Staff Map was inadequate, notably for the artillery. It was necessary to supplement this map with hastily constructed maps of the battle area (plans

Periodical Articles—Catalog

directeurs) to the scale of 1:10,000 and 1:20,000. Since the War, the French have brought out a new map of the scale 1:50,000 which meets all requirements.

(20) GLI ESPLOSIVI DA MINA. [Explosives for mining operations.] Izzo

(21) IL FATTORE COLONIALE NELLA ROMANITÀ. [The colonial factor in Roman history.] Micaletti

(22) LOGISTICA SANITARIA. [Logistics of the Medical Service.] Felsani

FIELD ARTILLERY JOURNAL

November-December 1934

- (1) ARTILLERY IN LANDING OPERATIONS. Captain Shannon
- (2) THE SPIRIT OF THE OLD AND THE NEW FIELD ARTILLERY. By the late Major General Harry G. Bishop
- (3) SHOULD WE DISCARD AIMING POINTS FOR RAPID PREPARATION OF FIRE? Major Kiser
- (4) THE BATTLE OF BUZANCY. (I) Colonel Lanza
- (5) INFLUENCE OF INDUSTRIAL PRODUCTION ON MILITARY OPERATIONS. Colonel Menu, French Army

January-February 1935

- (6) THE RECENT REORGANIZATION OF THE FIELD ARTILLERY. Major Christian
- (7) FIELD ARTILLERY MOTOR MAINTENANCE. Major Lewis
- (8) THE BATTLE OF BUZANCY. (II) Colonel Lanza
- (9) UNILATERAL CONDUCT OF FIRE. Captain Campbell
- (10) ARTILLERY STRENGTHS OF THE FRENCH OFFENSIVES OF 1918. General Fournier, French Army. (A digest by Major J.S. Wood) (See RML No. 55, page 119, and page 124, this issue.)
- (11) THE DEVELOPMENT PROGRAM FOR ARTILLERY DESIGN. Captain Blanchard

FIGHTING FORCES (Great Britain)

December 1934

- (1) LESSONS FROM THE MARNE. Lieut.-Colonel Burne
- (2) PASSCHENDAELE. Major-General Fuller
- (3) THE MARINES AT SOLEBAY. Lydekker
- (4) THE FRENCH AND OURSELVES

INFANTRY JOURNAL

November-December 1934

- (1) THE SIGNPOST THAT WAS MISSED. Captain Liddell Hart
- (2) SAVING DOUGHBOY LIVES. MAN-POWER VERSUS MATÉRIEL IN WAR. Major Brougher
- (3) DUTIES OF AN ADJUTANT. Captain Conable
- (4) THE DEATH OF LAWTON—A REMINISCENCE. Colonel Elmore, Retired
- (5) HITCHING THE INFANTRY-ARTILLERY TEAM FOR ATTACK. Captain Case
- (6) THE MILITARY EXPERT. Lieut. Colonel Spaulding
- (7) WILL CAPTAIN JOHN HUMP GET TO LEAVENWORTH? Major Smith
- (8) TANK PLATOON TACTICS. Lieutenant Nelson
- (9) MOTORS IN RECONNAISSANCE AND SECURITY. Major Arms
- (10) WILL IT HAPPEN AGAIN? Part I. Major Boyd
- (11) ADDRESS OF SECRETARY DERN
- (12) YOUNGER GENERALS. Major Scudamore, British Army
- (13) NOTES FROM THE DEPARTMENT OF EXPERIMENT—THE INFANTRY SCHOOL. Colonel Kelley
- (14) A SUGGESTION SYSTEM FOR THE ARMY. Captain Rarey

January-February 1935

- (15) TESTED BY WAR. Major Pendleton
- (16) MECHANIZATION, TERRAIN AND RECONNAISSANCE. Major Heileman

- (17) THE PEACE OF NORTH CHINA. Captain Colby
- (18) THE BATTLE OF VILLERS-COTTERETS. Captain v.Schell, German Army
- (19) A STUDY OF WAR TIME RANK. Lieutenant Hubbell
- (20) WARFARE IN THE 18TH CENTURY. Part I. Lieut. Colonel Scammell
- (21) VOLTAIRE'S TANK. Major General Fuller
- (22) CHEMICALS—HOW, WHEN AND WHERE? Captain Fisher
- (23) A STRIKE SITUATION AND A SOLUTION. Major Orr
- (24) WILL IT HAPPEN AGAIN? Part II. Major Boyd
- (25) THE POSITION OF THE SOLDIER. Colonel Vestal
- (26) THE NEW ARM. Lieut. Colonel Davis
- (27) RESERVE POLICIES AND NATIONAL DEFENSE. Lieut. Colonel Hill

JOURNAL OF THE ROYAL ARTILLERY (Great Britain)

January 1935

- (1) "WHAT EFFECT ARE MODERN DEVELOPMENTS IN AVIATION, ARMoured AND MECHANICAL VEHICLES, AND AUTOMATIC WEAPONS, LIKELY TO HAVE ON THE TACTICAL EMPLOYMENT OF ARTILLERY; . . . ?" ("Duncan" commented essay 1933-34) Major Pemberton
- (2) AUGUST 1914. A BRIEF ACCOUNT OF A MONTH'S EXPERIENCE OF A SUBALTERN IN A FIELD BRIGADE R.A., 20 YEARS AGO. Major Studdert
- (3) THE BATTERY STAFF T.A. A SUGGESTED PROCEDURE FOR ITS EMPLOYMENT AND DEPLOYMENT. By "An Adjutant"
- (4) SOME CAVALRY ACTIONS AND TANK COMPARISONS. By "Murus"
- (5) FIVE DAYS WITH THE NAVY. By "Soldier"
- (6) ROVING GUNS. [Les Pieces Nomades.] Lieut.-Colonel de Mazenod. Translated by Brig.-General Evans, from "Revue d'Artillerie," September, 1934
- (7) EXTRACTS FROM "THE CONDUCT OF WAR."—VII. GRAVELOTTE. THE FIGHT FOR THE VERDUN ROAD. Marshal Foch. (Translated by Captain Kernan, U.S. Army)
- (8) A DARK AND FATEFUL SUNDAY. (Meerut. May 10th, 1857.) Lieut.-Colonel Thackeray

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION (Great Britain)

November 1934

- (1) RECENT OPERATIONS IN MANCHUKUO. Captain Davidson-Houston
- (2) THE NEED FOR A SPECIAL COMBINED STAFF. Major Williams
- (3) AIR RECONNAISSANCE IN OPEN WARFARE. Wing Commander Slessor
- (4) MODERN AIR RECONNAISSANCE: THE IMPORTANCE OF UNITY OF COMMAND
- (5) A DEFENCE OF CLOSE ORDER DRILL: A REPLY TO "MODERN INFANTRY DISCIPLINE." Major Wardle
- (6) THE TRAINING OF THE ARMY, 1934. Lieut.-Colonel Cunningham
- (7) BRITISH STRATEGY AND BATTLES IN THE WESTPHALIAN CAMPAIGNS OF 1758-1762. Atkinson
- (8) THE FORTIFICATION OF THE FRENCH AND BELGIAN FRONTIERS. Lieut.-Colonel de Watteville
- (9) THE OPERATIONS ON LAKE TANGANYIKA IN 1915. Commander Spicer-Simson
- (10) THE AIR FORCES OF FRANCE. Major Stewart
- (11) SOME PROBLEMS OF A TECHNICAL SERVICE. Wing Commander Williamson
- (12) THE SECURITY OF SUPPLY. Captain Cooper
- (13) THE FUTURE OF INDIA'S DEFENCE. Lieut.-Colonel Baird Smith
- (14) THE SAAR TERRITORY TO-DAY. Major Scudamore

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA
(Great Britain—India)

October 1934

- (1) THE BEST SYSTEM OF DEFENCE AND CONTROL OF THE NORTH WEST FRONTIER OF INDIA (FROM CHITRAL TO THE PERSIAN FRONTIER INCLUSIVE), BASED ON THE FRENCH AND BRITISH METHODS OF CONTROL AND ADMINISTRATION. (Gold Medal prize essay, 1934) Major Dunford
- (2) SMOKE. Lieut.-Colonel Wason
- (3) TWO LECTURES ON THE MESOPOTAMIA CAMPAIGN. 6TH NOVEMBER, 1914, TO CAPTURE OF KUT-AL-AMARA ON 29TH SEPTEMBER, 1915. Part II. Major Shearer
- (4) THE WELSH MARCH AND THE N.-W.F.P. Major Whitehead
- (5) REALISTIC FIELD FIRING. A SUGGESTION. Brigadier Beresford
- (6) INDOOR T.E.W.TS. Captain Roberts

MARINE CORPS GAZETTE

November 1934

- (1) INFANTRY TRAINING AT NAVY YARDS. Lieutenant Clark
- (2) THE EDUCATION OF A MARINE OFFICER. Brigadier-General Williams
- (3) BUSH WARFARE TRANSPORTATION. Captain Brown
- (4) PROPOSED LANDING OPERATION. Lieutenant Leon
- (5) HEAVY MOBILE ARTILLERY IN BASE DEFENSE. Lieutenant Stephenson
- (6) MONEY—UNPLEASANT NECESSITY OF U.S. MARINE CORPS. Lieutenant Collings
- (7) WAR À LA CARTE. Scammell and Irvine
- (8) PROSPECTS IN THE CARIBBEAN. Jones

MILITARWISSENSCHAFTLICHE MITTEILUNGEN (Austria)

By Major F. Düring, Infantry

July 1934

- (1) EINFLUSS DER SEEMACHT AUF DEN GROSZEN KRIEG. [The influence of sea power on the World War.] Lieutenant Handel-Mazzetti

The author treats his subjects under the following headings: (a) The significance of the Sea to the Powers which took part in the War.—That all the Great Powers engaged in the War were dependent upon their external trade and their imports from overseas is shown very clearly by the trade figures for 1913 here given, in millions of marks, of each of the three countries of the Triple Alliance and of the three countries of the Entente. Hence blockade brought to the Central Powers, but also to Russia, economic collapse and the tragedy of exhaustion; while the command of the sea allowed the Western Powers to draw upon the resources of the rest of the world. The longer the war lasted the more heavily would this have weighed to the advantage of Germany's enemies. Command of the sea would have made Germany victorious in 1914.

(b) Sea power and policy.—Not only the belligerents, but also the neutrals, as far as they lay on the sea and were dependent upon it, came under the ban of sea power. Neutral powers opened up their resources, and were pressed into the war against the Central Powers. The part played by the United States is the best example of this.

(c) The struggle for the command of the sea.—This is dealt with under three sub-heads: the sea-battle which did not take place; the sea blockade; and the cruiser and submarine warfare.

As regards the first-named the author points out that a victorious sea battle would have been for Germany of a greater importance than for Great Britain. England had command of the sea without it; Germany could only obtain this command by fighting. The Germans preferred to keep their fleet as a "fleet in being" to risking a decision which would have meant the end of the beaten fleet. It is, however,

obvious that a defeat for England would have been followed by far graver consequences than a defeat for Germany, which was not in all respects dependent upon the sea. The Germans should therefore have risked the great sea battle, and that they did not do so Lieutenant Mazzetti attributes to the fact, that at the moment when the German Grand Fleet was required, its creator, Admiral von Tirpitz, who knew exactly what he had created the fleet for, was no longer naval commander-in-chief. "This was perhaps the gravest of all the mistakes committed on the German side!" This statement needs amplification. Admiral von Tirpitz, while he was commander-in-chief, was not allowed to risk the fleet. When nearly two years after war broke out the eagerly desired sea battle came; the result exceeded all German expectations. In spite of a British superiority of two to one, the result was a German victory tactically, but not strategically, and still less politically. The battle was incomplete; the British and German fleets each resumed its role as a "fleet in being," and henceforward acted only as a backbone to other methods of fighting, more economic than military, the blockade on one side and submarine warfare on the other.

Writing of the two remaining classifications the author states that by 1918 the war had become only a race between these two methods to see which could first bring about the collapse of its adversary. That the race was won by the Entente was partly due to the fact that submarine activity had been adopted too late.

(d) The influence of sea power on the land warfare.

(e) The victory of sea power over land power.—To speak thus of a victory of sea power, when it never came to a decisive battle at sea, may at the first sight appear as an exaggeration. Nevertheless this is the state of affairs which the end of the World War disclosed. It is true that certain events on land also played a considerable part, above all the battle of the Marne, but we must not forget that it was only the command of the sea which made it possible for the British Army to appear on the German right wing and thus to weaken that very wing of which von Schlieffen had written, "But make the right wing strong!" It was the command of the sea which made possible the saving of the Serbian Army, the hunger-blockade of the Central Powers, the provisioning and supply of all the enemy nations, the dragooning of neutrals, and the influencing of world opinion. The World War developed from a purely military campaign to an economic war of a hitherto hardly known intensity in which all civil populations were involved. In such a war that group of nations must in the end be victorious which actually holds command of the sea. The conquest of this command, incorporated in the British fleet, alone could have made a difference in the result.

Irresistibly one is drawn to an historic parallel, the Napoleonic wars. While Napoleon was winning his brilliant victories at Austerlitz, Jena, and Auerstedt, and finally, at Wagram, his fate had long since been decided on the sea at Trafalgar. He conquered himself to death, while he could no longer reach his most implacable foe, England. The two blows he directed against that country, the expedition to Egypt, and the attempted Channel crossing from Calais, were defeated in the sea fights off Alexandria and Cadiz.

(2) AUS KÄMPFEN DES K.U.K. INFANTERIEREGIMENTS NR. 52 IN DER SCHLACHT BEI STANISLAU 6.—8. JULI 1917. [The 52d Infantry Regiment in the Battle of Stanislaw, 6-8 July 1917.] (I)

A first instalment of this article gives a clear picture of the troops, their dispositions and circumstances in a trench warfare position, preparatory to being attacked. The writer's object is to describe the details of a fight as the best means of conveying a correct recognition of the state of affairs, and a true appreciation of the significance and consequences of those generally sudden impressions which the changing phases of the fight make upon the troops and upon their leaders who are on the spot.

(3) BETRACHTUNGEN ÜBER DEN WIRKUNGSGRAD DES MASCHINENGEWEHRFEUERS. [Thoughts on the degree of effectiveness of machine-gun fire.] Major Däniker

(4) DIE ABRÜSTUNGSVERHANDLUNGEN. VON ENDE DEZEMBER 1933 BIS 11. JUNI 1934. [The disarmament conferences.] Major General Paschek

(5) DIE FEINDERKUNDUNG DURCH DIE LUFTARMEE UND DIE OPERATIONEN DES LANDHEERES. [Air reconnaissance and ground strategy.] Major General Schäfer

This article consists mainly of abstracts from General Armengaud's "La reconnaissance de l'ennemi par l'armée de terre," which appeared in the April 1934 number of the "Revue Militaire Française." See RML No. 55, page 129.

August 1934

(6) VOR ZWANZIG JAHREN. [Twenty years ago.] Major General Steinitz

(7) SEEMACHTFRAGEN—WELTMACHTFRAGEN. [Questions of sea power are questions of world power.] Lieutenant Handel-Mazzetti

(8) AUS KÄMPFEN DES K.U.K. INFANTERIEREGIMENTS N. 52 IN DER SCHLACHT BEI STANISLAU 6.—8. JULI 1917. [The 52d Infantry Regiment in the Battle of Stanislaw, 6-8 July, 1917.] (II)

The writer gives a detailed account of the three days' fighting as experienced by his own battalion. The narrative is easily followed with the aid of four maps. It shows above all—and this appears to have been the author's intention—how good troops well led are equal to even most difficult situations, how they can adapt themselves to sudden changes in the fight, and how their training asserts itself, and how almost instinctively they do the right thing.

The 1st Battalion, 52d Regiment, during three days of very heavy fighting, mostly spent under barrage-fire, and getting their meals either with difficulty or not at all, (a) on their own initiative organized against and repulsed a Russian attack which had penetrated 400 yards beyond their front line, then restored and reorganized the original front line, (b) changed front 90°, facing northeast instead of southeast, and prevented the Russians, who had overrun the Austrian regiment on their left to a depth of about 1 mile, from extending the width of the breach they had made.

This latter achievement had a wide-reaching strategic result. Both of these feats were accomplished without reinforcements, and without any specific orders having arrived from regimental headquarters.

September 1934

(9) DER ERKÄMPFTE SAN-ÜBERGANG IM MAI 1915. [The crossing of the San in May, 1915.] Colonel Hess

After General Mackensen with the Eleventh German Army had broken through the Russian front in Western Galicia at Gorlice on 2 May, 1915, the combined Austro-Hungarian and German advance reached the obstacle of the San, 78 miles from their original front line, 14 days later. The San was 100 to 120 yards wide at this point; the bridges had been destroyed by the Russians. In spite of the fact that the troops had fought and marched for 2 weeks without a pause, the Prussian Guards Corps and the VI Corps started crossing at 5:00 PM, opposed by strong Russian rear guards; at 6:00 PM a ponton bridge was started and by 10:00 PM ten battalions had crossed and formed a bridgehead. The engineers, besides ferrying troops, built and maintained for 5 days and nights two ponton and four trestle bridges, including procuring the material for the latter.

MILITAR-WOCHENBLATT (Germany)

By Major F. During, Infantry

4 September 1934

(1) OSTERREICHS WEG SEIT ST. GERMAIN. [Austria since St. Germain.] A political discussion of the new Austria.

(2) WAR VERDUN IM SEPTEMBER 1914 EINZUSCHLIESSEN UND EINZUNEHMEN? DIE ROLLE DER 3. FRANZÖSISCHEN ARMEE UND IHRES FÜH-

RERS SARRAIL. [Verdun in September, 1914. The role of the French Third Army and its leader, General Sarraill.] Lieutenant Altman, Retired. (See abstract, page 62)

(3) DIE LETZTEN 200 M IM ANGRIF. EINE FRAGE DER BEWAFFNUNG UND TRUPPENGliederUNG. [The last 200 yards in the attack. A question of armament and organization.] Niekrens

The author recommends a battalion of 3 rifle companies, one mortar company of 6 mortars, one machine-gun company of 16 machine guns, and one communication platoon.

(4) ZIELE DER ENTWICKLUNG IM ITALIENISCHEN HEER. [The objective of the Italian Army.]

(5) DIE VERSTÄRKUNG DER ENGLISCHEN UND AMERIKANISCHEN LUFTMACHT. [The increase of the British and American air corps.]

A discussion of the training of British pilots and mechanics, and of the report of the Baker Board in America.

(6) WAHRE UND FALSCH PROPHETEN. [True and false prophets.] Lieut.-General Rohne, Retired

(7) KAVALLERIE- ODER MOTORISIERUNGSPROBLEM? [Cavalry or motorization problem.] Koch

11 September 1934

(8) DIE GROSZEN ITALIENISCHEN HEERESMANÖVER. [The Italian Army maneuvers.] (See abstract, page 88.)

(9) DER BISHERIGE VERLAUF DES CHACO-KRIEGES. [The Chaco War up to the present.]

On 19 December, 1933, a truce was declared between Bolivia and Paraguay, which was violated by the latter. However, the author of this article criticizes Paraguay for asking for a truce at a time when she was successful, and could have ended the war during December, 1933.

(10) DIE DEUTSCHE KRITIK NACH 1871 UND NACH 1918. [The German critics after 1871 and 1918.] Lieut.-General Marx, Retired

General Marx admits that critics are necessary and that much can be learned from them, but they must be careful not to judge the leaders in a way which discredits them.

After the War of 1871 critics were more conservative and no leader was discredited; on the contrary, leaders were held up as models and the youth respected and honored them. The result was that young officers like von der Goltz, Bernhardt, and many others, wrote military books, which on account of their merit were translated into many languages. General Marx bemoans the fact that not even one book has been written after this last war which equals the work of the writers just mentioned.

(11) DIE VERWENDUNG VON KAVALLERIE NACH ERFOLGTEM TANKEINBRUCH. [The employment of cavalry after a successful breakthrough by tanks.]

A discussion of the book, "Der Kampfwagenkrieg" [Tank warfare], by General Eimannsberger. (See review, page 157.)

(12) ENGLISCHE VERSUCHSBRIGADE. [The British experimental brigade.]

An experimental reorganization of infantry is taking place in England with the 6th Infantry Brigade. The object of the reorganization is given as follows: (a) to adjust the proportion of infantry to supporting arms; (b) to simplify tactical control of infantry supporting weapons; (c) to simplify peace training and the supply of reinforcements in war.

The 6th Brigade is organized into four battalions (three assault battalions and one support battalion). The assault battalions each consist of a headquarters company, which includes a platoon of four 3-inch mortars and a light machine-gun platoon of four guns with tripod mountings suitable for antiaircraft or ground fire; four rifle companies, each of four platoons of three sections with one light machine gun per section. The support battalion consists of a headquarters company, three machine-gun companies, of three platoons of two sections, each having two Vickers machine guns, and one antitank company of four platoons of four antitank guns.

Whether "supporting arms" means artillery is not known; therefore the experimental organization should be examined from the point of view of infantry weapons. The new organization increases light machine guns by forty-eight, and decreases heavy machine guns by twenty-eight, and mortars by four. The entire brigade is motorized.

(13) DIE KRIEGSFLOTTE DER SOWJETUNION UND DIE MEERENGENFRAGE. [The Navy of the Soviet Union.]

(14) JAPAN RINGEN UM DEN PAZIFIK. [Japan's fight for the Pacific.]

18 September 1934

(15) DIE VORSTELLUNGSBILDUNG VOM KRIEGE. [War in the making.] Captain Scholtz, Retired

Everywhere in Europe war clouds appear and disappear. A society to save Europe has been started in Switzerland; on the other side of the Rhine a zone of fortifications has been built—a sign of fear. The international diplomacy of old is back again. Visits of courtesy are exchanged between statesmen; expressions of sympathy and of love of peace are voiced—but at the same time the "powder is kept dry." All this is the first sign of a coming war. The motors of airplanes roaring over cities and country; the mobility and technical means of war have been increased many times. The chemical warfare is an heirloom of the late war and the presence of gas in all countries is an open secret. Only the when and where of the next war is unknown.

(16) GLIEDERUNG NEUZEITLICHER TRUPPENKÖRPER. VORSCHLAG DER KRIEGSGLIEDERUNG EINER "KAMPFWAGEN-DIVISION" UND EINER "SCHNELLEN DIVISION." [Organization of new and modern troop units. Suggestions for the organization of a tank division and of a fast motorized division.] (1) (See abstract, page 65.)

(17) LUFTFAHRT-RUNDSCHAU. [Survey of aviation.] Lieutenant Feuchter, Retired

(18) DIE ITALIENISCHEN FLOTTENMANÖVER. [The Italian naval maneuvers.]

The maneuvers consisted of day and night combat and antiaircraft firing, attacks by U-boats, change in formation under high speed to cope with different situations, a tactical exercise of the squadrons and a parade of the fleet.

(19) DIE VÖLKER DER SOWJETUNION UND DIE ROTE ARMEE. [The people of the Soviet Union and the Red Army.] Maurach

(20) ERFABRUNGEN AUS DEN MARATHONFAHRTEN 1934. [Experiences of the 1934 Marathon ride.] Major Bieringer

25 September 1934

(21) UBER SCHLIEFFEN-GEIST UND HAESELER-GEIST. [Schlieffen or Haeseler?] Lieut. General Marx, Retired

This article might well be termed "School training versus troop duty."

General Marx makes an interesting comparison between Schlieffen and Haeseler. The latter believed firmly that officers could prepare themselves for war much better while on duty with troops, than by spending years at higher schools. He wanted officers who could lead men in battle, and leadership can only be learned when in actual command of troops. He desired practice and not theory. Schlieffen, fully realizing that troop duty was an essential part of an officer's training, believed that officers should take courses at schools in order to learn to make decisions.

General Marx favors the Schlieffen idea of schools somewhat. He states that maneuvers are merely cut and dried affairs; everybody is trying to please the peculiarities of the general in charge of the maneuvers, and that company commanders, for instance, know little more than Blue is at war with Red and that his flanks should be at a certain point and that his objective is in front of him. Little more was known to subalterns and even higher commanders in the last war, and little more will be known in the next war. The author suggests a happy medium between Schlieffen's and Haeseler's ideas.

(22) GLIEDERUNG NEUZEITLICHER TRUPPENKÖRPER. VORSCHLAG DER KRIEGSGLIEDERUNG EINER "KAMPFWAGEN-DIVISION" UND EINER "SCHNELLEN DIVISION." [Organization of new and modern troop units. Suggestions for the organization of a tank division and of a fast motorized division.] (II) (See abstract, page 65.)

(23) DAS SCHNELLE ZUSTOSZEN DES GENERALS BOTHA IN DEUTSCH-SÜDWESTAFRIKA 1914. [General Botha's action in Southwest Africa in 1914.] Leppa

The author replies to an article in the 11 August, 1934, issue of the "Militär-Wochenblatt," stating that the comparison between the different theaters of war is unfair, and that General Botha did not act as quickly as was stated in the original article.

(24) DIE LUFTSCHUTZÜBUNGEN BEI LONDON. [The antiaircraft exercise of London.] Lieutenant Feuchter, Retired

4 October 1934

(25) DIE BEDEUTUNG DES HISTORISCHEN STUDIUMS FÜR DEN SOLDATEN. [The importance of the study of military history for the military man.] Major Günther

One is apt to hear at times, that the study of military history is of no benefit to anyone, for strategy and tactics are constantly changing. The author of this article takes issue with the above and emphasizes that the basic principles of strategy never change and the principles of tactics only to a small degree. Schlieffen's principles of Cannae were successfully applied in the battle of Tannenberg.

(26) DER INFANTERIEANGRIFF NAHE AM FEIND. [The infantry attack during the last 300 yards.]

A recommendation for the armament of one machine gun per squad, one motor per platoon, heavy machine guns, and one light minenwerfer per rifle company.

(27) ENGLISCHE MANÖVER 1934. [British maneuvers 1934.] (I)

The British maneuvers in 1934 were divided into three phases. The first phase consisted of a landing maneuver in the center of the British east coast, and lasted from 10 to 13 September. The landing troops totalled 9,000 men, 2,000 of which were transported on warships, the remainder of the troops as well as animals, vehicles, and tanks were placed near the landing places and held in readiness there. Their participation was timed on a theoretical landing.

The coast was defended by three battalions of infantry, one regiment of cavalry, one battalion of field artillery, one battalion of armored cars, and one squadron of airplanes; the length of the coast line was about 35 miles.

In spite of clear weather, the observation posts did not notice the approach of the small boats until they were within 500 yards of the coast. A landing was accomplished at seven places. In the beginning the attacker was successful, but later the defender was able to stop him sufficiently to have the maneuver end in a stalemate.

The second phase of the maneuver consisted of an attack by a tank brigade against a strategical objective. The Savernake Forest was considered an industrial center, a railroad terminal, and the headquarters of the high command. After having broken through the enemy lines, the tank brigade made a wide envelopment instead of moving directly on the objective. The battalion of light tanks closed all roads leading into the forest. The actual attack was made from three directions and in combat teams of two light, two medium, and one heavy tanks. The attack was a complete success. The maneuver ended with a night march without lights, across country.

(28) AUFKLÄRUNG IN DIE FERNE. [Distant reconnaissance.] (IV) (See abstract, page 35.)

(29) UM CALAIS UND DÜNKIRCHEN. [Calais and Dunkirk.] Sell

(30) FLUGSTÜTZPUNKTE AUF HOHER SEE. [Landing facilities on high seas for airplanes.] Lieutenant Feuchter, Retired

(31) MODERNE SCHIESZAUSBILDUNG. [Modern instruction in rifle marksmanship.]

11 October 1934

(32) AUFMARSCH 1914 UND HEUTE? [Concentration 1914 and today.]

The author considers Germany's national, political, and strategical situation of 1914 and looks at them from a viewpoint of 1934, and finds that (a) Today's reconnaissance agencies advance considerably farther and are certain of better results than was the cavalry reconnaissance in 1914; (b) The defense of today is stronger than in 1914, which means a prolonged fight with weaker forces; (c) Airplanes and mechanized units are able to attack distant objectives; (d) Increased speed of modern means of transport permit a rapid changing of forces, which is advantageous to both attack and defense and the services of supply; (e) Modern systems of communication makes a complete change of direction of operation easier; (f) Modern armies are more dependent on a regular system of supply of munitions, matériel, and gas and there is a constant danger that the lines of communication be interrupted by the enemy.

Based on the above the author concludes that the Schlieffen plan would not work today and that under present conditions, surprise is nearly impossible.

(33) WIE DER DEUTSCHE MARNE-RÜCKZUG 1914 VON DER FRANZÖSISCHEN TRUPPE EMPFUNDEN WURDE. [How did the Marne withdrawal of 1914 affect the French troops?]

The article is based on the French book, "La Grande Guerre sur le Front Occidental," by General Palat, in which is stated that the French 14th Division received an order to withdraw. After this division had completed its withdrawal, it became known that the Germans had also withdrawn. The General Staff of the French Sixth Army thought the withdrawal of the Germans problematical and even on 16 September it was believed that the German withdrawal was only a trap. The commander of the French 45th Division ordered a careful pursuit, because he thought the German withdrawal might be a bait.

(34) DIE BEDEUTUNG OPERATIVER SCHULUNG UND PRAKTISCHER DIENSTKENNTNISSE. [The importance of schools and troop duty.] Colonel Schack

Colonel Schack, discussing the article, "Schlieffen or Haeseler?," in the 25 September, 1934, issue of "Militär-Wochenblatt" (see page 111), concludes that the first years of an officer must be years of hard study, divided between schools and troop duty.

(35) FRANZÖSISCHE KORPSMANÖVER BEI BESANCON. [French Corps maneuver at Besancon.]

The contemplated large troops maneuver were cancelled this year and maneuvers of smaller units and of shorter duration were held.

(36) JAPANS WEG ZUR WELTLUFTMACHT. [Japan as a world power in military aviation.] By "G.v.M."

(37) DER CHACO-KRIEG IN FRANZÖSISCHEN LICHT. [The Chaco War according to French views.] Colonel v.Xylander

According to this study, which is based on an article in "Le Soldat de France," the Bolivian Army is organized after a German pattern, while the Paraguayan Infantry is organized on a French model.

18 October 1934

(38) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. VOR PARIS 1914. [Twenty years ago. In front of Paris, 1914.] Wetzell

The author recalls the days of 1914 when the German Army was near Paris and gives as reasons why Paris was not taken, the following two factors: (a) No general headquarters is able to be successful if the different army commanders fail to follow implicitly directives given from general headquarters; (b) Lack of proper use of communication and especially the absence of personal and verbal exchange of thoughts between commanders of larger units.

(39) KRIEGFÜHRUNG UND WIRTSCHAFT IM WANDEL DER ZEITEN. [War and industry.] Captain Ruprecht, Retired

(40) DER "TOTALE" KRIEG. [The Italian maneuvers.]

The author raises the question whether the recent Italian maneuvers (see page 88) were maneuvers for the purpose of training troops and answers this question in the negative. According to the author the maneuvers were for the purpose of showing the Fascist system of national defense in conjunction with national and international policies.

(41) DIE AUSBILDUNG DER FRANZÖSISCHEN RESERVEN. [The training of French Reserves.]

(42) FORTSCHRITTE IM ENGLISCHEN LANDHEER. [Development in the British Army.]

(43) AUSWERTUNG VON FLIEGERBILDERN. [Employment and application of aerial photography.]

(44) EIN HOHER ITALIENISCHER OFFIZIER ÜBER DIE ROTE ARMEE. [The Red Army.] Major General Schulz, Retired

This is an abstract from the Italian magazine, "Giornale d'Italia," in which General Grazioli gives his impressions of the Russian Army. The Red Army is modern in organization and training. The officers come from the proletariat, but are of independent thought and action. The discipline is excellent. The army is organized for the offensive and the training of officers is along these lines. The Russian Army is strong in cavalry, reinforced with motorized and mechanized units. The Russians intend to increase their already strong air arm and well trained pilots.

(45) KOHLE ODER OL? [Coal or oil?] Waldeyer-Hartz

25 October 1934

(46) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. STREIFLICHTER AUF DEN WEICHELSELFELDUNG IM OKTOBER 1914. [Twenty years ago. The Vistula operations in October 1914.] v.Schäfer

The author, after a short resumé of the operations, brings out that it was the fault of the Austro-Hungarian high command that the operations were not successful. Cooperation with the German high command was missing.

(47) ENGLISCHE MANÖVER 1934. [British maneuvers 1934.] (II) Colonel v.Ylander, Retired

The third phase of the maneuver took place between 19 and 21 September. A West Army of four corps had entered East territory and was in contact with an East Army of equal strength. A West Corps was concentrating on the left flank of the West Army; to this corps was attached one mechanized brigade, one motorized brigade, three and one-half squadrons airplanes. The West Army commander intended to use this force to attack the lines of communication of the East Army and to prevent an East infantry division and cavalry brigade from reaching the East front line. The mechanized brigade and motorized brigade of the West Army and the infantry division and cavalry brigade of the East Army, besides aviation on both sides, were present, while the other troops were assumed.

When the reconnaissance detachments of the East Army reported an enemy motorized brigade marching in a southerly direction, the East Army commander, after having verified this report by observation planes, ordered all available airplanes to bomb and attack this force. The West motorized brigade was subjected to three aerial attacks, and this at a time when its main body was in a town. The attacks caused havoc among the West brigade. It was fortunate that the mechanized brigade was still in its concentration area and remained there until fog prevented aerial observation. This brigade moved towards the same town, which it reached during the night. The East commander expected an attack during the morning hours, but on account of the heavy losses which the West motorized brigade had suffered, this attack did not materialize. The East commander then decided to have his cavalry brigade attack the West mechanized brigade, but the field radios refused to function properly, and the

brigade reached the area of the West mechanized and motorized brigades, after the motorized and part of the mechanized brigade had withdrawn. The East cavalry brigade entered the town, and attacked the mechanized brigade, which was able to take the staff of the East brigade as prisoners, while on the other hand the well concealed artillery of the East troops caused much damage to the mechanized troops. The maneuver was called off during this attack.

(48) PROBLEME DER ZUKUNFT. FRANKREICHS ANGRIFFSARMEE AUS BERUFSSOLDATEN. [Problems of the future. Regular Army of France.]

According to this article, Colonel Gaulle has recommended a heavily armed and very mobile regular army of 100,000 men, besides the fortress army, and the present regular infantry and cavalry divisions.

This new army is to be organized into seven divisions, each division to consist of three brigades and special troops, as follows:

One mechanized brigade of one heavy and medium regiment of tanks and one battalion of light tanks. This battalion is to be used for reconnaissance. The total of tanks to be about 500. The armament to consist of 150 guns of medium caliber, 400 guns smaller caliber, and 600 machine guns.

One motorized infantry brigade of two infantry regiments and one "Jäger" battalion. The armament is 50 accompanying weapons and 50 antitank cannons and 600 machine guns (heavy and light).

One artillery brigade of one regiment of field pieces and one regiment of medium howitzers and one battalion field artillery.

The special troops of each division to consist of one battalion of engineers, one communication battalion, one camouflage battalion, one reconnaissance battalion, and a squadron of observation aviation.

Besides the seven divisions the organization of one brigade of very heavy tanks, one artillery brigade of the largest calibers of guns, one engineer regiment, communication, and camouflage troops, and one group of pursuit and one group of observation planes as a permanent reserve is also recommended.

(49) IST JAPANS JETZIGE LAGE FÜR EINEN KRIEG GÜNSTIG? [Is the present situation favorable for a Japanese war?] Munin

The author states that before Japan is able to start a war with the United States, it must successfully attack Russia in order to take from Russia the northern part of the Sachalin Island. It is only on this island where Japan can find enough oil to carry on a war. The author doubts whether Japan is in a position to carry on a war with Russia unless it quickly destroys Vladivostock and occupies the Island of Sachalin.

(50) LUFTFAHRT-RUNDSCHAU. [Aviation survey.] Feuchter

4 November 1934

(51) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DER KAMPF AM WESTFLÜGEL DES HEERES UND DER LAUF ZUM MEERE IM HERBST 1914. [Twenty years ago. The fight at the west flank of the army and the race to the sea in 1914.] (I) Major General v.Rabenau

(52) DIE MANÖVER IN DER TSCHECOSLOWAKEI. [The maneuver in Czechoslovakia.]

The object of the maneuver, which took place between 20 and 23 September, 1934, was to give leaders training in decision and planning, and to test the new organization of the army.

(53) SCHLACHTENSCHIEDENDER EINSATZ MOTORISIERTER VERBÄNDE NACH FRANZÖSISCHER AUFFASSUNG. [Entrance of motorized units at the decisive moment.] Colonel Schack

A critical analysis of the article, "Distant Reconnaissance." (See abstract, page 35.) The author does not believe that victory could be obtained by having the lines of communication successfully attacked. He states that in many cases large cavalry units have been operating in rear of an enemy without causing any demoralization of the front-line troops.

(54) TAKTIK UND BEWAFFNUNG FRANZÖSISCHER JAGDFLUGZEUGE. [Tactics and armament of French pursuit planes.] By "G.v.M."

The author recommends six machine guns on a pursuit plane and believes that fire-power is more important than "refined" tactics.

(55) **ERFAHRUNGEN ÜBER AUSRÜSTUNG UND BEKLEIDUNG IM CHACO-KRIEGE.** [Equipment and clothing in the Chaco War.]

(56) **DER SCHUTZ DER ZUFUHRSTRASZEN ENGLANDS.** [The protection of England's sea lanes.] Captain v. Waldeyer-Hartz, German Navy

(57) **DIE DEUTSCHE KAVALLERIE IN POLEN 1914/15.** [The German cavalry in Poland in 1914-15.] By "G.v.M."

11 November 1934

(58) **KRIEGSLEHREN.** [War lessons.] (I) General Wetzell, Retired

In this first installment of a series of articles on war lessons, the author brings out that after a successful war the lessons learned during the war are not taken seriously and are often forgotten, but that after an unsuccessful war, the reverse is true.

(59) **AUS GROSZER ZEIT VOR ZWANZIG JAHREN. DER KAMPF AM WESTFLÜGEL DES HEERES UND DER LAUF ZUM MEERE IM HERBST 1914.** [Twenty years ago. The fight at the west flank of the army and the race to the sea in 1914.] (II) Major General v. Rabenau

(60) **WARUM KÖNNEN WIR NICHT TARNEN?** [Why can't we camouflage?] Lieut. General Marx, Retired

The author regrets that Germany opened their archives, which contain the most secret documents, with private notes, etc., for anyone to peruse. General Marx feels that Germany should have used camouflage to keep some of the secrets secret.

(61) **DIE FRANZÖSISCHE MAUER.** [The French fortifications.] By "v.B."

(62) **MILITÄRISCHE VORBEREITUNG EINER NATION.** [Military preparedness of a nation.] By "G.R."

The military education of the youth of Italy is the topic of the article. The military education begins when a boy is 8 years of age and ends 10 years after he has been discharged from the Army. The author claims that in the near future Italy will not only be a military but a militaristic nation.

(63) **AMERIKANISCHE MANÖVER.** [American maneuvers.]

A discussion of the recent American Army Command Post Exercises in New Jersey.

18 November 1934

(64) **KRIEGSLEHREN.** [War lessons.] (II) General Wetzell, Retired

The author brings out the necessity of a careful selection of military leaders in time of war. The general who is selected to lead the military forces of a nation, must have the confidence of all and should not be replaced during the war. His staff must also be carefully selected; they must be the best brains of the army, of high character, with a will to subordinate themselves to their chief.

(65) **AUS GROSZER ZEIT VOR ZWANZIG JAHREN. EINIGE BETRACHTUNGEN ZUM FELDZUG VON LODZ.** [Twenty years ago. Thoughts about the battle of Lodz.] v. Schäfer

(66) **REGIERUNG UND OBERBEFEHL IN FRANKREICH WÄHREND DES WELTKRIEGES.** [Government and high command in France during the War.]

The author speaks of the controversies between members of the French government and the high command. The government tried several times to regulate the action of the high command. Joffre at one time told the government that he would not take the responsibility, if the government insisted on carrying out a plan which was contrary to Joffre's views. Much hard feeling was brought about by the control visits at the front by members of the government. When the high command opposed such visits, Poincaré warned them, saying that the government would get tired of such opposition. "The generals believe that they are without fault. It would be easy to understand their attitude if their fronts were at the Rhine."

The author then states how several French generals were relieved from command by their government.

(67) KRIEG UND WEHRWIRTSCHAFT. [War and supplies.]

(68) DIE WAFFEN DES CHACOKRIEGES. [The arms used during the Chaco War.]

The infantry on both sides used the Mauser rifle. Paraguay used a few automatic pistols, while Bolivia used both automatic pistols and automatic rifles. The use of machine guns was somewhat handicapped by the terrain, but very effective in open terrain. Minenwerfers were successfully used on both sides. Artillery used 75-mm. field pieces, 65-mm. accompanying weapons, and 105-mm. howitzers. Bolivia used 22-mm. antiaircraft artillery. The terrain made the use of cavalry impossible; therefore air reconnaissance was of greatest importance. Bolivia had air superiority throughout the war. Troops on the march and rear areas were frequently bombed. Paraguay used one hospital plane. Tanks were used only on the Bolivian side. Gas was not used on either side; flamethrowers were used on the Bolivian side.

(69) DAS NEUE ITALIENISCHE WEHRGESETZ. [The new Italian military law.] Colonel v.Xyländer

25 November 1934

(70) SEEGEWALT IN DER GESCHICHTE. [Sea power in history.] Admiral Meuer, Retired

(71) AUS GROSZER ZEIT VOR ZWANZIG JAHREN. SCHLESISCHES LANDWEHRKORPS 1914. [Twenty years ago. Silesian Reserve Corps, 1914.] Leppa

(72) DIE ENGLISCHEN LUFTSTREITKRÄFTE IM WELTKRIEGE. [British aviation during the War.] Bischlager

A review of the book, "The War in the Air," by H.A. Jones.

(73) TAKTISCHE ERFAHRUNGEN AUS DEM CHACOFELDZUG. [Tactical lessons from the Chaco War.]

A short description of the battle at Canado Stronges, 18-25 May, 1934, in which the Bolivian troops took 1700 prisoners and captured 60 machine guns and 24 trucks.

(74) OFFIZIER UND BUCH. [Officers and books.] Captain Scholtz

The author stresses the fact that it is absolutely necessary for officers to read good books. He does not believe, however, that they should be only of historical and military nature.

MILITARY ENGINEER

January-February 1935

(1) THE ENGINEER SCHOOL. Captain Moore

(2) STRATEGIC MINERAL SUPPLIES. 3. NICKEL. Major Roush

(3) WOODEN FOUNDATION PILES. Bouillon

(4) THE FORT PECK DAM—THE PROJECT. Captain Wolfe

(5) FORT PECK DAM—PROGRESS OF CONSTRUCTION. Captain Chorpene

(6) LESSONS FROM NAPOLEON—3. FRIEDLAND. Captain Colby

(7) THE OHIO RIVER MOVABLE DAMS. Lieutenant Oxx

MILITARY SURGEON

December 1934

(1) THE STERILIZATION OF INSTRUMENTS IN THE FIELD. Colonel Lawrence

January 1935

(2) RECENT DEVELOPMENTS IN MEDICAL FIELD EQUIPMENT AND TRANSPORT AT THE MEDICAL DEPARTMENT EQUIPMENT LABORATORY, U.S. ARMY. Colonel McKinney

February 1935

(3) STOPPING POWER. Lieut. Colonel Goddard

- (4) AN ANALYSIS OF PHYSICAL EXAMINATIONS FOR THE C.C.C. AT RICHMOND, VIRGINIA, OCTOBER 1 TO 15, 1934. Lieut. Colonel Mercer
- (5) THE UNITED STATES GOVERNMENT MEDICAL SERVICES

NAVAL INSTITUTE PROCEEDINGS

November 1934

- (1) CHINESE LINES OF COMMUNICATION AND THEIR EFFECT ON STRATEGY. Lieutenant Wells
- (2) HIGH QUALITY OF OUR RESERVE. Colonel Reisinger
- (3) AN EVALUATION OF THE TACTICAL SCHOOL. Brigadier General Breckinridge
- (4) ACCURACY IN AERIAL DEAD RECKONING. Gatty
- (5) DIESEL-DRIVEN SURFACE CRAFT. Lieut. Commander Huse
- (6) AIR BOMBARDMENT REGULATIONS. Ensign Chambliss

December 1934

- (7) THE ISSUE AT THE NEXT NAVAL CONFERENCE. Lieut. Commander Talbot
- (8) MISTAKEN ATTACKS IN THE WORLD WAR. Lieut. Commander Doughty, Jr.
- (9) MECHANIZATION IN AID OF LANDING. Lieutenant Harris

January 1935

- (10) THE AIRPLANE ON BOARD THE SUBMARINE. Gavrilof
- (11) JOINT NAVY AND ARMY PROCUREMENT. Lieut. Commander Seligman
- (12) NAVAL WARFARE IN MINIATURE. Ensign Smiley

February 1935

- (13) D'ESTAING'S FLEET REVEALED. Captain Knox, Retired
- (14) A MODEL MOROCCAN OPERATION. Colonel Evans
- (15) FAILURE AT GALLIPOLI. Captain Jessop, Retired
- (16) AEROLGY AND THE HAWAIIAN FLIGHT. Lieutenant Stephens
- (17) LA PALABRA DEL GRINGO! LEADERSHIP OF THE NICARAGUAN NATIONAL GUARD. Colonel Reisinger
- (18) GRAPHIC INTERPOLATION IN AZIMUTH TABLES. Commander Craven
- (19) THE PASSING OF TOGO. Lewis
- (20) NAVY SKYHOOKS. Lieutenant Miller

PIONIERE (Germany)

By First Lieutenant H.D. Vogel, Corps of Engineers

August 1934

- (1) DIE BELGISCHEN UBERSCHWEMMUNGEN 1914. [The Belgian flood of 1914.]

This article illustrates strikingly the need for training engineer officers in times of peace to cope with the elements of nature in time of war. It points out in a dramatic way the effects of the Yser flood of 1914 on the German advance, and thus serves to supply another strong reason for engineer officers to perform river and harbor work as a part of their peacetime duties.

On 20 October, 1914, the German Fourth Army was situated with its right flank on the sea and its left against the Sixth Army. To its front lay Dünkirchen, from which it was separated only by an already yielding enemy, and the Yser river, a canalized stream less than eighty feet wide. By 24 October, withdrawal of the Belgians to a new position behind the Nieuport—Dixmude railway embankment was necessitated, and it remained only for the German troops to cross the river, which, however, was rising rapidly by this time. Since heavy rains had occurred during the past few days it was naturally believed that the rise was only normal and that it would be of short duration, but such did not prove to be the case. As

the opposing forces withdrew before them, the Germans advanced only with the greatest difficulty through water and mud. The III Corps, now west of the Yser and attempting to pave the way for the remainder of the Army, suffered heavy losses as it fought through the obstacle imposed by nature. And still the water rose! Losses increased to such an extent that the German III Corps was forced to fall back behind the Yser, retreating knee deep through water. By 3 November, the water was head high in places, and troops were withdrawn only with the greatest difficulty. Thus was lost the opportunity to strike a decisive blow and force the battle to a definite conclusion.

Naturally the question arises, "What combination of circumstances made this extraordinary flood possible?" According to the Belgian maps, the land surface was several meters above sea level and it appeared impossible that the inundation had been from the ocean. Correspondingly, it seemed impossible that rain over so small a drainage area could have produced such a rise in the river. The answer has been long delayed for the reason that the datum of the Belgian maps was until recently unknown. Now it stands revealed that instead of measuring elevations from mean sea level as the Germans, the Belgians used as their zero the height of low water following a spring-tide; that is to say, an elevation two yards lower than that reckoned on by the Germans. Also other factors had entered to complicate the situation: A series of exceptional spring-tides, occurring coincident with on-shore storms, had carried great quantities of bed-material into the mouths of the Lys, Aa, and Yser Rivers to form veritable sand dams. The impounded water had, of course, backed up over the surrounding country with the results we already know.

The article continues with a resumé of past flood history of the region, showing that contrary to general belief such occurrences have not been uncommon and that other military operations have been affected by breaching a levee or closing a lock at a critical time. The following is stated in conclusion: "Meanwhile we have learned a lesson from the First Battle of Flanders and today know the importance of water as a battle weapon for land defense."

(2) "L'ORGANISATION DU TERRAIN." [Organization of the terrain.]

With an ever increasing mobility a prime consideration in modern warfare, attention has been centered in all armies upon the importance of terrain in connection with both offensive and defensive operations. Provisional instructions for organization of terrain are contained in a special French publication, composed of three parts, as follows: (1) Tactical considerations in connection with principles of leadership and training; (2) Technical employment of weapons; and (3) Details for military engineers. The first of these parts appeared in 1927; the last in 1933.

A general review of the publication referred to, i.e.: "Instruction provisoire sur l'organisation du terrain," is presented here. In it are contained general references to the several component parts of the original discussion together with more detailed enumerations of terrain influences. A greater part of the article is devoted to organization of the ground for defense.

(3) ZUSAMMENWIRKEN ODER UNTERSTELLUNG. [Cooperation or subordination.]

"Pioneers are the technical combat troops of modern armies. Their duties are to open the way in attack and block it in defense." Thus begins in familiar sounding phrases an article that proceeds to strike the keynote of all that is new in warfare. Should technique be subordinated to tactics, or should it be considered of equal importance in this day of mechanization? Can any defense be planned without giving primary consideration to technical means available? Can any plan of attack be formulated without giving first attention to technical means of overcoming obstacles? Should not the engineers be considered, in any phase of battle, as more than mere technical assistants to the infantry? These are some of the tantalizing questions suggested by the author preparatory to stating,

"With this, there is originated a new field of tactics, namely: that of the engineer." He then suggests that instead of keeping separate the affairs of the separate arms or even holding paramount the tactical unity of the combined arms, there be made an effort to develop all elements into technical harmony. The article does not attempt to set forth any fast rules, urging rather that cooperation be obtained through open-minded training in which the combined effect of fire, shock, and technique is considered. In this connection every opportunity should be sought by technical troops for joint maneuvers with infantry units.

(4) **AUSBILDEN DER PIONIERKOMPANIE.** [Training of the engineer company.]

(5) **EINE FELDBEFESTIGUNGSÜBUNG.** [A field fortification exercise.]

Here is given a complete map exercise to cover the organization of a position for defense. Principles brought out in conclusion emphasize the necessity for improvising obstacles, cover, etc., when standard materials are insufficient or inadequate, as will generally be the case.

(6) **FELDPIONIERGEIST.** [Field engineering spirit.]

The engineer company and its leader, the lieutenant, the noncommissioned officer, and the military engineer in war and peace are discussed in this short but inspiring article.

(7) **ENTWÄSSERN EINER STELLUNG.** [Drainage of a position.]

An elementary discussion of percolation through soils strata is contained herein as a practical guide to the field engineer confronted with the problem of dewatering entrenchments or similar evacuations. Effects of both rain- and ground-water are treated in some detail.

(8) **EINE STAUÜBUNG.** [A dam problem.]

Two small dams are described in this article, which, like the one preceding it, is practical in nature but elementary in principles.

(9) **ÜBERWINDEN VON TRICHTERGELÄNDE.** [Swamp crossings.]

Portable bridges of special types are discussed and illustrated.

(10) **PIONIERS IM ORTSGEFECHT 1914.** [Engineers in localized combat in 1914.]

This article describes the combat functions of engineer troops in connection with the German assault on Arras in an early phase of the World War. Severe fighting was being engaged in for the purpose of seizing the key point of the existing road net when engineer troops were thrown into action near the town of Hénin which lay in the sector of the 14th Infantry Brigade. Advancing astride the main street of the town, supported by artillery and machine-gun fire, the engineers caused severe losses in the ranks of their adversaries, while suffering little themselves. The reason for this lay in the use made of supporting weapons.

In conclusion it is pointed out that engineers may be expected to give a good account of themselves as shock troops when the exigency of the situation demands their employment. In the engagement at Hénin the justification for such employment of the engineers lay in the basic nature of the affair. The many-sidedness of their earlier training then bore fruit, enabling the technical troops to play the rôle of infantry most satisfactorily.

(11) **GASPIONIERE IM WELTKRIEGE.** [Chemical troops in the World War.]

At the beginning of the World War there was no chemical armament in the German Army. Not only had there been no technical preparation and research, but there was also lacking a military organization for chemical warfare. Faith in existing armament was so great at this time as to preclude thought of the necessity of chemical aids to combat. Very quickly, however, it was found that entrenched adversaries had excellent protection in the ground against infantry bullets and splinters of bursting shells. It was obviously necessary to develop a means of forcing the enemy into the open.

The first experiments with a 15-cm. gas grenade and the "B-mine" proved unsatisfactory from the standpoint of mass employment, as it

was not believed a sufficient concentration could be laid down to produce a definite tactical effect. It was therefore decided to employ the force of the wind to carry the gas against the enemy's positions, and the 35th Pioneer Regiment was fitted out as a chemical regiment. These were the first chemical warfare troops.

The first gas attack was made on 22 April, 1915, at 6:00 PM at Ypres. Six thousand gas containers, set in batteries of twenty each, were released in a period of five minutes over a four-mile front. A cloud of chlorine gas 600 to 900 yards deep was thus formed, and as a result, 5,000 prisoners and 60 guns were taken.

In the subsequent employment of gas mines, however, some disadvantages of chemical warfare began to be revealed. Great dependence had to be placed upon the weather, and changing wind conditions could make the gas dangerous to the troops releasing it. Also, considerable time was required for the emplacement of mines, which then stood as a threatening danger to friendly troops until they could be released. In many cases it was necessary to wait a week for a suitable opportunity to release the gas. In 1916, the 35th Pioneer Regiment was augmented by the 36th for employment in chemical warfare. Also, the position of Gas Regiment Inspector was created in GHQ. Developments in matériel quickly followed and, in the spring of 1917, one hundred gas mines were exploded simultaneously, causing great loss among adversaries not yet experienced in gas discipline. A 20-cm. projector, with walls 1-cm. thick, was next developed to throw a thin-walled cylinder containing 12 to 15 liters of gas. This projector was designed to be embedded in the earth and exploded by electricity. Many hundreds could be placed in batteries of twenty each and discharged simultaneously.

In playing the rôle of chemical troops throughout the World War, German engineers lived up to their honored traditions, continuing to lead the way in battle.

(12) DIE PATROUILLE NOBLING. [Patrol "Nobling."]

This article describes briefly the exploits and bravery of a leader who fell in the last year of the World War, when as First Lieutenant he commanded a company of engineers. The subject of the account is his adventure of September, 1914, in leading a demolition group across the Canal de l'Este and the Maas River to destroy a railroad connecting Toul and Verdun.

(13) DEICHBRÜCHE IM NEISZE-GEbiet. [Levee crevasses in the Neisse region.]

Herein is described briefly an expedient method of closing a small levee break.

(14) FLUSZWANDERN AUF DER DONAU. [Travels on the Danube.]

QUARTERMASTER REVIEW

November-December 1934

- (1) THE GHQ COMMAND POST EXERCISE. Lieut. Colonel Frink
- (2) TONNAGE—WHAT IS IT? Captain Holt
- (3) SUPPLY AT THE DARDANELLES. Major Matchett
- (4) THE LAND OF CHARCAS. Schurz
- (5) THE EFFECT OF CHEMICAL WARFARE AGENTS ON QUARTERMASTER SUPPLIES. Major Urmacht
- (6) THE QUARTERMASTER STOREHOUSE OF KNOWLEDGE. PROBLEM No. 6

REVISTA DEL EJERCITO Y DE LA MARINA (Mexico)

By First Lieutenant M.D. Taylor, Field Artillery

July 1934

- (1) CONVIENE QUE EL PLAN DE ENSEÑANZA DE LA ESCUELA SUPERIOR DE GUERRA Y EL PROGRAMA DEL CICLO DE INFORMACIÓN PARA GENERALES VAYAN EN COMPLETA ARMONÍA CON LA ORGANIZACIÓN Y FUNCIONAMIENTO

DEL EJÉRCITO NACIONAL. [It is proper that the program of instruction of the General Staff School and of the Course for General Officers be in harmony with the functional organization of the army.] Brigadier General Mendoza

(2) LA FORTIFICACIÓN A TRAVÉS DE LAS EDADES. [Fortification through the ages.] Major Alvarez

(3) CULTURA PROFESIONAL DEL OFICIAL NAVAL. [The professional knowledge of the naval officer.] Lieutenant Araico, Mexican Navy

(4) IMPORTANCIA DEL ESTUDIO DE LAS SUBSISTENCIAS EN LA ESCUELA MILITAR DE INTENDENCIA. [The importance of a study of subsistence in the Quartermaster School. Captain Canales

(5) EVOLUCIÓN DE LOS PROYECTILES. [Evolution of projectiles.] Captain de Zaldo

(6) MOVILIZACIÓN INDUSTRIAL. [Industrial mobilization.] Captain Burdick, U.S. Army

(7) ¿QUÉ LIMITE DEBEN TENER LOS CONOCIMIENTOS TOPOGRÁFICOS PAR LOS OFICIALES DE INFANTERÍA Y CABALLERÍA? [What should be the scope of the topographical instruction of infantry and cavalry officers?] Captain Munoz

(8) IMPORTANCIA MILITAR DE LOS FERROCARRILES. [Military importance of railways.] Captain Chiriboga O.

(9) ¿QUE PAPEL LES TOCARA DESEMPEÑAR A LOS BACTERIÓLOGOS EN LA GUERRA FUTURA? [What will be the role of the bacteriologist in the next war?] Major Radoye

August 1934

(10) TRASPORTE DE UNA DIVISIÓN POR FERROCARRIL DE LA CIUDAD DE PUEBLA A LA DE TAPACHULA. [Movement of a division by rail from Puebla to Tapachula.] Lieutenant Quiroz

A detailed study in the logistics of troop movement by rail. The article contains information of the capacity of the Puebla-Tapachula railroad line, of train densities and speeds to be expected, as well as quantities and types of rolling stock needed for the movement of a Mexican division.

(11) ENSAYO CRITICO SOBRE EL SITIO DE CUAUTLA. [A critical study of the siege of Cuautla.]

This study consists of five contributions which include an examination of the use of infantry, artillery, terrain, and fortifications in the siege of Cuautla (1812).

(12) LA CABALLERIA MODERNA. [Modern cavalry.] Captain Calderón

(13) UNA SOLUCIÓN AL TEMA PRESENTADO POR "LA REVISTA DEL EJERCITO Y DE LA MARINA," A LAS CORPORACIONES DE CABALLERÍA. [A solution to the problem presented to cavalry officers by "Revista del Ejercito y de la Marina."]

Two solutions presented by cavalry officers to a problem presented in the May number of this review.

September 1934

(14) EL MANDO Y EL ESTADO MAYOR. [Command and Staff.] Brigadier General Mendoza Z.

(15) INSTRUCCIÓN Y PRÁCTICA DEL TIRO. [Instruction and practice in marksmanship.] Colonel Catalán

(16) CONSIDERACIONES GENERALES SOBRE LA ARTILLERIA DE NUESTRA CABALLERÍA. [Considerations concerning the artillery with cavalry.] Captain Contreras

(17) TRASPORTES POR AUTOMÓVIL. [Movements by motor.] Captain Escobedo

(18) TRASPORTES MILITARES. PUENTES COLGANTES DE CABLES EN SECCIONES ARTILADAS. [Military communications. Suspension bridges with sectionalized cables.] Córdova

(19) LA POLITICA, LA ESTRATEGIA Y LA TÁCTICA. [Politics, strategy, and tactics.] Lieutenant Aznar

(20) RESTAURACIÓN DE LA CABALLERÍA. [The restoration of cavalry.] Lieut.-Colonel Salbach

(21) APRECIACIONES DE CARÁCTER GENERAL SOBRE LA ORGANIZACIÓN DEL EJÉRCITO ITALIANO Y DE LAS SALIENTES CARACTERÍSTICAS DE BÁSICA PREPARACIÓN CÍVICO-MILITAR. [The general character of the organization of the Italian Army and of Italian basic military preparation.] Lieut.-Colonel Coronel

(22) EL VIAJE DE LA ESCUADRA AÉREA FRANCESA AL ÁFRICA. [Flight of a French air formation to Northern Africa.]

REVUE DE L'ARMÉE DE L'AIR (France)

By Major C.H. Wash, Air Corps

July 1934

(1) LA PARTICIPATION DE L'AVIATION DU MAROC AUX TRAVAUX PRÉPARATOIRES DE RENSEIGNEMENTS EN VUE DE LA RÉDUCTION DES MASSIFS DU DJEBEL SAGHO ET DU GRAND ATLAS CENTRAL (JANVIER-JUIN 1933). [The participation of Moroccan aviation in the intelligence work preparatory to the subjugation of the mountainous groups of Djebel Sagho and the Central Grand Atlas, January to June, 1933.] Captain Marette

The 37th Regiment of Aviation was called upon to complete, in three weeks, a photographic and visual reconnaissance of the areas noted in the title, in preparation for the occupation of these areas by ground troops. The article is an account of the magnitude of the work done and is interesting to air and ground officers alike, in that it shows the possibilities of aerial reconnaissance when an air force is unopposed in the air.

(2) CONTRIBUTION À L'ÉTUDE DE L'APTITUDE PHYSIQUE À L'EMPLOI DE PILOTE D'AVION. [Notes upon physical aptitude for flying duty.] Major Flamme

Of interest to people who write regulations on this subject.

(3) CONTRIBUTION AMÉRICAINE À LA NAVIGATION AÉRIENNE ASTRONOMIQUE. [The American contribution to celestial navigation as applied to aviation.] Captain Bastide

A review of American efforts, particularly those of Weems and Gatty, and the interest of the U.S. Navy in this subject.

(4) L'AVIATION ET LA D.C.A. EN 1918. [The air service and the antiaircraft service in 1918.] Major Lucas

Paris in 1918 was, from an aerial point of view, an "intrenched camp," which is the subtitle of this article. The article details the ineffectual struggle to protect Paris from air raids and outlines the gradual abandonment of the "continuous patrol" system of defense which was not only costly but ineffective. This system of "close in" aerial defense robbed the field forces of very necessary aerial forces and accomplished no useful purpose.

(5) AMÉLIORATION DES PROCÉDÉS DE SIGNALISATION TERRE-AVION. [Improvements of the methods of communication between ground stations and aircraft in flight.] Captain Bourguès

A proposal to simplify and improve panel signalling, with reason.

August 1934

(6) LE SONDAGE AÉRIEN. [Aerial sounding.] Lieut.-Commander Laboureur

An illustrated account of an ingenious sensitive altimeter, by its co-inventor. The instrument measures the time interval between the mission of a sound and the return of its echo, translating the time directly into units of distance, on the dial.

(7) FAISONS LE POINT EN AÉROSTATION. [Let us "fix the position" of lighter than air aviation.] Colonel Bienvenue

An interesting article on the employment of the captive balloon, during the World War, and a discussion of its relative value as opposed to aircraft for observation purposes, with certain proposals for the reorganization of this service, in the French Army.

(8) PHOTOGRAPHIE AÉRIENNE ET PHOTOGRAMMÉTRIE. [Aerial photography and photogrammetry.] Captain Seive

It is necessary to distinguish between aerial photographs taken for purposes of information only, and those taken for either civil or military purposes, which require an accurate scale. Aerial photography of this latter class, called "Photogrammetry" by the author, requires special aircraft, photographic equipment, and training.

(9) LA CRÉATION DES ATELIERS RÉGIONAUX. [The establishment of regional repair depots.]

A discussion of recent French legislation establishing regional repair depots for major repairs. The author favors a system whereby these major repairs are executed by the factories which originally produced the aircraft.

(10) HISTOIRE ILLUSTRÉE DE L'AVIATION EMBARQUÉE. [Illustrated history of "ship-home" aviation.]

(11) LE DROIT AU VOL. [Man's right to fly.] Nadar

September 1934

(12) LES FATIGUES EXCEPTIONNELLES DU SERVICE AÉRIEN. [Fatigues peculiar to aviation.] Major Flamme

Of considerable interest to flight surgeons.

(13) RÉNOVATION DU MATÉRIEL D'AÉROSTATION. [Renewal of lighter than air matériel.] Captain Senille

Certain proposals for the improvement of lighter than air matériel, with special reference to increasing the mobility of equipment and perfecting the means of defense.

(14) CONSEILS—PENSÉES—APHORISMES. [Advice—Ideas—Aphorisms.] Major Nuville

Some maxims for pursuit pilots, given in the Gallic manner.

(15) LE LESTAGE DE AVIONS D'ARME POUR LES MISSIONS DU TEMPS DE PAIX. [Ballast for combat aircraft on peace-time missions.] Captain Genevois

An argument for the use of ballast to replace the "military load" of armed aircraft on peace-time missions in order to accustom pilots to fly their military loads.

(16) HISTOIRE ILLUSTRÉE DE L'AVIATION EMBARQUÉE. [Illustrated history of "ship-home" aviation.]

REVUE D'ARTILLERIE (France)

By First Lieutenant M.D. Taylor, Field Artillery

July 1934

(1) ETUDE DES DENSITÉS D'ARTILLERIE RÉALISÉES AU COURS DES OFFENSIVES FRANÇAISES DE 1918. [A study of artillery densities in the French offensives of 1918.] (III) General Fournier

A continuation from the May and June numbers of the "Revue d'Artillerie."

Following the battle of Montdidier, the First Army continued its advance. On 8 September its advance guards gained contact with the Hindenburg position west of St. Quentin. On 1 October, the position was attacked in conjunction with the Fourth British Army on the left, the operation receiving the name of the Battle of St. Quentin (first phase). In the second phase of this battle beginning 8 October, the First Army drove the Germans from the localities of the Hindenburg position north-east and east of St. Quentin. After this success the First Army in conjunction with the British pushed to the line of the Sambre canal in the battle of Mont d'Origny, 17 October, 1918. On 4 November, the First Army made a surprise crossing of the Sambre canal without an artillery preparation and reoccupied Guise. After 6 November, the retreat of the Germans became general along the entire front.

The following table shows the artillery densities achieved by the First Army during this period. They resulted not from extensive rein-

forcement from general headquarters but from the careful utilization of the organic artillery of reserve divisions. The densities are well below the "reduced reinforcement" of the directive of 31 October, 1917.

Date	Army Front	75-mm. Battalions		Medium and Heavy Howitzer Battalions		Heavy and Medium Gun Battalions	
		Total	Per Kilometer	Total	Per Kilometer	Total	Per Kilometer
1 October, St. Quentin (first phase)	35	45	Slightly less than 1 1/3	18	Slightly more than .5	15	About .4
8 October, St. Quentin (second phase)	45	48	Slightly over 1	17	Slightly less than .4	18	.4
17 October, Mont d'Origny	47	63	Slightly over 1 1/3	20	Slightly over .4	23	Slightly less than .5
4 November, Guise	35	69	Slightly less than 2	25	Slightly over .7	21	.6

The author concludes his study with the statement that in his opinion, the artillery requirements for the attack have not changed materially since the War. Two important changes have taken place in the armament of modern armies: (1) the automatic weapons of the infantry have increased in number and power; (2) fast tanks have been developed capable of combating in a measure these automatic weapons. This first change is favorable to the defense and the second, to the attack. For the artillery, the first increases the zones to be neutralized while the second permits of a reduction of artillery missions of direct support. However, the tanks themselves must be protected and the direct support of tanks may be counted an additional artillery mission.

(2) ABAQUES DE FINS DE TRAJECTOIRES POUR LE RÉGLAGE ET LE REPÉRAGE PAR COUPS FUSANTS HAUTS. [Graphs of descending branches of trajectories for use in high-burst ranging.] Major Morel and Captain Bastard

(3) LE DUC D'ALBE. UN PORTRAIT DU XVI^e SIÈCLE. [The Duke of Alva. A sixteenth century portrait.] Rustow

(4) JAPON: L'ARMÉE JAPONAISE. MOTORISATION ET MÉCANISATION. [Motorization and mechanization in the Japanese Army.]

This article is abstracted from the "Militär-Wochenblatt" of 18 April, 1934, which in turn is based on Russian sources. (See RML No. 54, page 107.)

August 1934

(5) LE COMTE VON SCHLIEFFEN AU PANTHÉON DES GRANDS CAPITAINES. [Schlieffen in the Pantheon of great captains.] General Fournier

General Fournier is unsympathetic to the Schlieffen cult in Germany which would elevate the former Chief of the German General Staff to the ranks of the world's great captains. He reproaches Schlieffen with having attempted to introduce mathematical precision into strategical combinations, with having underestimated the political consequences of an invasion of Belgium and with having been weak in his dealings with

the Kaiser. Most of all, General Fournier objects to the apotheosis of a military leader who was never tested on the field of battle.

(6) DÉCLENCHEMENT DES TIRS D'ARTILLERIE. [Calls for artillery fire.] Colonel Buchalet

In order to have forward observers who can call down fire on points of resistance on the front of the attacking infantry, an ample supply of gridded 1:50,000 maps is needed. Officers and noncommissioned officers of both artillery and infantry should be trained in the designation of targets on these maps. Finally, the infantry-artillery team should be welded together by frequent maneuvers executed together.

(7) À QUOI SERT LE CHEF D'ESCADRON? [What good is the battalion commander?] Lieut.-Colonel Ricard

The peace-time organization of the French artillery battalion does not provide the battalion commander with a staff. Consequently, in order to fulfill his tactical and technical functions in battalion exercises, he is constantly improvising a staff from personnel borrowed from the batteries. The author urges a permanent organization, citing the battalion staffs provided in the other principal armies of Europe.

(8) RÉFLEXIONS SUR LE TIR FUSANT. [Reflections on time fire.] Colonel Carlut

(9) DÉTERMINATION DE LA QUEUE DE TRAJECTOIRE POUR LE RÉGLAGE PAR COUPS FUSANTS HAUTS. [Determination of the horizontal projection of the descending branch of a trajectory for use in high-burst ranging.] Colonel Viant and Lieutenant Tinlot

September 1934

(10) LES PIÈCES NOMADES. [Roving guns.] Lieut.-Colonel de Mazenod
The use of roving pieces offers the following advantages: (a) The possibility of delivering short bursts of surprise fire upon the enemy at short ranges; (b) the determination of firing data corrections for reinforcing batteries; (c) concealment of the true disposition of our own batteries; (d) deception as to the true density of artillery in the sector. (See also translation in "Journal of the Royal Artillery," January, 1935, page 497.)

(11) A PROPOS DE L'OBSERVATION CONJUGÉE A BASE COURTE. [Combined observation by two observers at opposite ends of a short base line.] General Delègue

(12) DÉTERMINATION DE LA QUEUE DE TRAJECTOIRE. [Determination of elements of the descending branch of a trajectory.] Lieutenant Matray

(13) POINTAGE DIRECT DES PIÈCES SUR LES ASTRES. [Use of heavenly bodies as aiming points and reference points.] Captain Wels

The sun, moon, and stars being at infinite distances, the lines of sight of all optical instruments laid upon them at a given moment are rigorously parallel. This fact offers many possible applications in the laying of artillery. The practical difficulty of using these bodies lies in the problem of assuring synchronization of observation.

(14) COURS DIVISIONNAIRES DE TIR DES MORTIERS D'ACCOMPAGNEMENT. [Division schools of fire for infantry mortars.] Major Maire

(15) LA D.C.A. À L'ARMÉE D'ORIENT. [The antiaircraft defense of the Army of the Orient.] Major Lucas

A study of the antiaircraft defense in General Sarraïl's Salonica force in the years 1915-1918.

REVUE DE CAVALERIE (France)

By Lieutenant Colonel N.B. Briscoe, Cavalry

September-October 1934

(1) LE MARÉCHAL LYAUTEY. [Marshal Lyautey.] General Brecard
An obituary notice. General Lyautey went from the cavalry to the old permanent general staff corps and upon its disintegration chose to go back to the cavalry and later had many important assignments.

(2) DEFENSE CONTRE LES ENGINES BLINDÉS. [Defense against armored vehicles.] Major Poupel

"The aim of this study is to make known the defense and combat against armored vehicles, light and heavy, on wheels or on tracks."

The problems are presented but not solved and are interesting to all arms. Information is of capital importance, and aviation is the best means of obtaining it. Obstacles are of prime importance, both on the stabilized front and on the front of maneuver. Engineer works, mines, traps, ditches, etc., in fact all works should be arranged by higher commands in case of fixed warfare, to be circumvented. Natural obstacles, watercourses, forests, road cuts and fills, and settlements are to be avoided. Explosives placed on roads, chaplets of grenades, cavalry, and infantry groups must prevent reconnaissance; artillery must be protected against incursions, and aviation must arm its airdrome against a fast armored enemy on the ground.

The regulations say: (a) Separate the assaulting infantry from its accompanying tanks, directing on it the fire of all arms in order to force it to the ground. (b) Attack the tanks with all the means of fire of the defense. (c) Place the fire again on the infantry, if it tries to advance.

Tanks are deaf and blind. Deafness is an advantage under the fire they attract. Blindness is always a disadvantage. "Modern matériel draws its security from its speed," but the author, admitting much progress, remains skeptical of the practical use of speed in combat.

The author intersperses the article with short sketches of his experiences in handling tanks in the World War, and has great respect for heavy machine guns and field artillery.

He concludes: They are not invulnerable. If we know in time, if obstacles can be placed, if we know how to maneuver in their presence and put our weapons in action against them, we shall beat them.

(3) OCCASIONS PERDUES. [Lost opportunities.] (III) Major Gazin

The third installment of this series, including 2 September, 1914, the advance of the German First Army.

(4) ESSAI SUR LA SÛRETÉ. [Essay on security.] (I) Major Dauffer

The first of a series. "A lost battle is a battle that one thinks is lost." Rezonville, Saint-Privat, Liaoyang—but Waterloo and the Ardennes (1914) are exceptions to prove the rule.

The junior officer continually hears the problem "in double entry" of "executing the mission" and "conserving his means"—but the mission comes first.

The author discusses each danger and a countermeasure and sums up, "Security, while in place, respecting economy of force, rests on a minimum of material measures:

A covering force, motorized.

Rapid lateral communications.

A motorized antitank defensive line.

A map study and terrain study, by all ranks, of combat positions and eventual routes."

All based on the general idea of the successive occupation, by ever increasing groups, of the various critical terrain features.

(5) LE CAVALERIE DANS LES OPÉRATIONS DU HAUT-ATLAS (AVRIL-AOÛT 1933). [The cavalry operations in the High Atlas country, April-August, 1933.] (II) By Major "B"

A continuation of the day by day account of operations with photos of very bad looking "Bad Lands" and of a command post in some of the rockiest and roughest ground imaginable. The account is accompanied by maps, but one hesitates to believe that such innocent looking maps could portray such horrible country.

REVUE D'INFANTERIE (France)

By First Lieutenant C.T. Lanham, Infantry

July 1934

(1) CARNET D'UN COMBATTANT. [Note book of a combatant.] (I) Lieut. E.R. (Paul Tuffrau)

The January, May, June, and December, 1933, numbers of the "Revue d'Infanterie" carried further extracts from this lieutenant's memoirs.

(2) CHARS ET ANTI-CHARS. [Tanks and antitanks.] Major Perré. (See abstract, page 71.)

(3) L'INFANTERIE DANS LA DÉFENSIVE SUR DE GRANDS FRONTS. [Infantry defense on large fronts.] (I) Major "X"

A detailed study of an infantry division in a defensive operation. The general situation closely resembles the French dispositions in Lorraine at the end of August, 1914, but beyond that the picture is merely the usual Blues versus the Reds. The maps are the ordinary French variety, in other words, difficult; the discussions of the several decisions are thorough; and the solutions posed are reasonable.

(4) REMARQUES SUR LA PRATIQUE DU TIR DU FUSIL-MITRAILLEUR. [Remarks on automatic rifle practice.] Captain Soutiras

A technical discussion of the problems of automatic rifle fire at ranges greater than 600 yards with particular reference to the 1200 yard limit contemplated by French regulations.

(5) LA DÉFENSE DES PONTS DE CHÂTEAU-THIERRY, LE 2 SEPTEMBRE 1914. [The defense of the Chateau-Thierry bridges, 2 September, 1914.] Captains Laulan and Grisel

This article is offered to complete the account of the same action as told by General Spears in "Liaison."

August 1934

(6) ETUDE SUR LE FLANQUEMENT. [A study of flanking actions.] General Lugand

General Lugand presents a fine study of flanking actions from both the defensive and the offensive points of view. He analyzes four historical examples in great detail, two from the defensive angle, two from the offensive angle. The first defensive example is taken in the Lorraine Sector in 1916; the second in the defense of the Meuse in the same year. The offensive studies are laid in the Vauxaillon Sector in 1918 and in the vicinity of Soissons in August, 1918. This is an unusually instructive article but, unfortunately, the reader is seriously handicapped by the poor maps, especially by the lack of coordinates.

(7) LA 14^E DIVISION ALLEMANDE AUX MARAIS DE SAINT-GOND (8 SEPTEMBRE 1914). [The German 14th Division at Saint Gond, 8 September, 1914.] Major Villate

(8) ETUDE SUR L'ORGANISATION TOPOGRAPHIQUE DE L'OBSERVATION. [A study of the topographical organization of observation.] Lieutenant Franceschi

The author offers a time saving method for preparing a map that will show the terrain actually visible from any given observation post.

(9) L'INFANTERIE DANS LA DÉFENSIVE SUR DE GRANDS FRONTS. [Infantry defense on large fronts.] (II) Major "X"

The conclusion of the article started in the July number.

September 1934

(10) LA JOURNÉE DU 21 AOÛT 1914, À LA 5^E ARMÉE: CHARLEROI. [The Fifth Army on 21 August, 1914: Charleroi.] Gay

A study of the operations of the Fifth Army on 21 August. The account is particularly rich with detailed actions of the small units. We can usually find out what happened to the corps and the armies but seldom do we find historical narratives that deal with the very flesh and blood of battles—"the men of the tattered battalion who fight till they die."

The maps are unusually good in that the dispositions of the various units are shown in colored ink; this makes the narrative much easier to follow.

The author clings tenaciously to one item throughout his entire article—the alleged practice of the Germans in forming “living shields” of the civilian populace in order to cover their advance. One is inclined to discredit this, and, of course, of one remains unconvinced on this item, the accuracy of the remainder is liable to be viewed with a slightly jaundiced eye.

(11) TIR LOINTAIN DES MITRAILLEUSES. [Long range machine-gun fire.] Major Trébous

A very detailed technical article of long range machine-gun fire. Tables of fire, formulae, etc., are given. The thorough analysis made of the effects of this type of fire is of particular interest to those readers who have been following the controversial articles in “Revue d’Infanterie” on the “base de feux.”

(12) CARNET D’UN COMBATTANT. [Note book of a combatant.] (II) Lieut. E.R. (Paul Tuffrau)

(13) L’INSTRUCTION DES CADRES DE L’INFANTERIE: ÉTUDE DE CAS CONCRETS. [The training of infantry cadres: a study of concrete cases.] (I) Lieut.-Colonel Guigès

REVUE DU GENIE MILITAIRE (France)

By Major P.C. Bullard, Corps of Engineers

September-October 1934

(1) EMPLOI DU GÉNIE AUX OPÉRATIONS DU MAROC EN 1933. [Employment of engineers in the operations in Morocco in 1933.] (I) General Naquet-Laroque

The engineers of the French army have been of great service in the operations in pacifying the dissident areas of Morocco. The work has included the building of many miles of roads and trails, bridges and culverts, water supply installations, posts for troops, and aviation fields. The terrain is particularly difficult, due to its mountainous nature.

(2) UN NOUVEL APPAREIL DE TÉLÉPHONIE OPTIQUE. [A new apparatus for telephony by means of light.] Major Deny

Rumania has recently tested a Zeiss instrument which is reported to accomplish the following, under average conditions:

Telephonic conversation on visible rays, about 4 miles.

Telephonic conversation on invisible rays, about 3 miles.

Telegraphic sound signals, on rays, about 5 miles.

Luminous signals, by day, about 6 miles.

Luminous signals, by night, about 12 miles.

When the atmosphere is perfectly clear, these distances are increased by about 50 per cent. The apparatus is carried in two haversacks, with a tripod in addition.

In sending, the vibrations of the voice are transformed into electric vibrations, as in a telephone, which electric vibrations then cause two optical prisms to move with respect to each other and thus modify a beam of light passing through, thus in turn transmitting the vibrations upon the beam of light. At the receiving end, the vibrations are transformed into electric oscillations by means of a photo-electric cell.

(3) EXERCICE SUR LE CARTE (SAPEURS DE CHEMIN DE FER). LE BATAILLON DE SAPEURS DE CHEMINS DE FER DANS LA MARCHÉ EN RETRAITE. UNE SOLUTION. [Map problem: railroad engineers. The battalion of railroad engineers in the retirement. A solution.]

A solution of the problem presented in the July-August number. The study treats of the operation of the railroad in connection with the tactical operations, the withdrawal of the rolling stock, the planning, preparation, and execution of demolitions, the assignment of tasks to the units of the battalion, and the distribution, supply, and handling of these units.

REVUE MILITAIRE FRANCAISE (France)

By Major C.A. Willoughby, Infantry

July 1934

(1) LA DOCTRINE MILITAIRE ALLEMANDE. [The German military doctrine.] Colonel Altmayer. (See abstract, page 82.)

(2) LA RECHERCHE DES RENSEIGNEMENTS ET LEUR DIFFUSION PAR UN 2^E BUREAU DE CORPS D'ARMÉE. [Collection of enemy information. Corps G-2.] Lieut.-Colonel Martin

This is a companion article, by the same author, to a similar study which appeared in the April number. It is an interesting article on the sifting of the various forms of information which reach the intelligence staff of a Corps, and the methods by which such information should be digested, first for the commanding general and then for circulation to subordinate units.

(3) EVOLUTION DES FORCES MILITAIRES ITALIENNES DE 1929 À 1934. [Evolution of the Italian Army, 1929-1934.] Major Morel

August 1934

(4) ALBERT 1^{ER} EN 1914. [Albert I in 1914.] General Azan

A short study on the influence of King Albert of Belgium, on the critical situation existing in 1914. The author credits the king with the conduct of the Belgian retreat to the Yser and a decision to make a stand on 26 October.

(5) LES DERNIÈRES ÉTAPES DE LA PACIFICATION DANS LE GRAND ATLAS MAROCAIN. [The last phase of the Moroccan pacification.] (I) Lieut.-Colonel Lancon

A first installment, dealing with the French operations in the Meknès region, 1931-1933. An interesting account of colonial warfare, in which the French have had considerable experience.

(6) LE SENS DU TERRAIN ET LA GÉOGRAPHIE MILITAIRE. [Appreciation of terrain.] (I) Captain Thoumin

A military-geographic study to emphasize the importance of a real analysis of the ground; the gist of the author's argument is that it is relatively easy to orient oneself in horizontal dimensions, but it is quite another matter to visualize the profile.

(7) LA BATAILLE DE GALICIE EN 1914. [The battle of Galicia, 1914.]

(I) General Golovine

An important contribution to World War literature, in view of the expert knowledge of the Russian author, General Golovine. This large-scale operation represents a meeting engagement of armies, on a front of 220 miles. The Russian Southwest Group of four armies, was to defeat the Austro-Hungarian armies in Galicia and envelop them; this conception was practicable only on a basis of superiority of numbers, which the Russians did not possess, due to a slower rate of mobilization. The Austrians expected to concentrate approximately 43 divisions by M+15 days while the Russians could not collect more than 38 divisions by M+25 days. The Austrians were able to attack the Russian right wing (Fourth Army) with superior numbers. The battle opened unfavorably for the Russians.

September 1934

(8) LA BATAILLE DE GALICIE EN 1914. [The battle of Galicia, 1914.]

(II) General Golovine

This article describes the Russian recovery, after an unfavorable beginning, and the subsequent retirement of the Austrians. Due to French demands, the Russians contemplated the employment of a Ninth and Tenth Army, in a direct threat against Berlin, by way of Posen. The Russian commander-in-chief interposed and decided on a vigorous campaign in Galicia. The author covers initially the operations of the Russian Fourth Army (Evert) against the Austrian First Army (Dankl) as well as the Russian Fifth Army against the Austrian Fourth Army. The with-

drawal of the Russians gave a false impression, on that front, which adversely affected Conrad's subsequent decisions.

Meanwhile, the Russian left wing was meeting with success in the Gnila Lipa (29 August), operating against the Russian Third Army (Boroevitch). By 2 September the whole strategic situation was reversed; the Russians had a 50% superiority on their northern wing, while the Austrians had three armies against two on the southern wing. The decisive maneuver was made by Plévé's Army, launching four corps against the rear of the Austrian Fourth and Third Armies. The Austrian commander was forced to retire with a loss of 100,000 prisoners and 300 guns.

(9) LES DERNIÈRES ÉTAPES DE LA PACIFICATION DANS LE GRAND ATLAS MAROCAIN. [The last phase of the Moroccan pacification.] (II) Lieut.-Colonel Lancon

The operations described are those of the 1932 Campaign, lasting from May to September.

(10) LE SENS DU TERRAIN ET LA GÉOGRAPHIE MILITAIRE. [Appreciation of terrain.] (II) Captain Thoumin

The article is of considerable interest to the military engineer. On the basis of a sector of the French military map 1:80,000, the author shows how a great deal of unexpected information can be deduced from a systematic study of the ground.

(11) LA BATAILLE DE ZAMA. EXTRAIT DU LIVRE DE LIDDELL HART SUR SCIPION L'AFRICAIN. [The Battle of Zama. A reprint of a portion of Liddell Hart's "Scipio Africanus."] Captain Lageix

RIVISTA DI ARTIGLIERIA E GENIO (Italy)

By Major F. During, Infantry

June 1934

(1) LA COOPERAZIONE FRA ARTIGLIERIE. [Artillery fires.] Colonel Merzari

In this article Colonel Merzari emphasizes the complete cooperation between division, corps, and army artillery. Neither division nor corps artillery should be limited to its particular front; the corps artillery commander must be able to concentrate the fires of the whole of his division and corps artillery on any desired target.

(2) IMPIEGO DI UNA COMPAGNIA AEROSTIERI D'OSSERVAZIONE. [Employment of a balloon company.] Major Cappuccini

(3) NOTE SULL'IMPIEGO DELL'ARTIGLIERIA NELLA BATTAGLIA DALL'ASTICO AL MARE. [Employment of artillery.] Major Raudino

(4) NUOVI ORIENTAMENTI NELL'AGUERRA TERRESTRE. [New thoughts about land warfare.] Lieut.-Colonel Infante

The author touches briefly on the new armament and the new organization of infantry in France, Germany, and Great Britain. When considering the question of motorization and mechanization, Colonel Infante states that Italy should not blindly follow the lead of other nations but should take advantage of the experience they have gained and the mistakes they have made and to consider the special nature of the country in which Italy is likely to be called upon to operate. He recommends that tanks and armored cars should be formed into separate corps and not become part of infantry or cavalry.

(5) IL MEZZO FERROVIARIO NELLA MANOVRA. [The use of railways.] Captain Paoli

The author discusses the relative merits of rail and motor transportation in time of war. Both were used extensively during the late war, but however great the advantages of motor transportation may be, it is clear that railways will always be essential. When motor transportation is employed on a very large scale, it is always handicapped by the large amount of road metal that must be carried in order to maintain the roads in good condition. Considering a single track road 75 miles long and the fact that a train can travel three times the speed of motor vehicles in con-

voy, such a railroad would have a carrying capacity equal to that of 10,000 motor trucks.

July 1934

(6) RINNOVAMENTO TATTICO. [New tactics.] Colonel Biondi-Morra
The author refers to the modification introduced in the organization of larger units and to the armament of the infantry, which has now stronger offensive possibilities, and lays stress on the changes that have been brought about in mobile warfare by the introduction of modern appliances for offense and defense.

(7) CONSIDERAZIONI SULL'EFFICACIA DEL TIRO CONTRO AEREI. [The efficiency of antiaircraft fire.] Brigadier General Faujas

The author points out the errors that can be made in preparing and carrying out fire against aircraft.

(8) IL PROBLEMA DELLE TRASMISSIONI NELLE GRANDI UNITÀ CELERI. [The problem of signal communication in large mobile units.] Major Cappuccini and Captain de Falco

(9) IL RIFORNIMENTO DELLE MUNIZIONI DI ARTIGLIERIA NELLA DIVISIONE. [Supply of artillery ammunition in an infantry division.] Major Caméra

August-September 1934

(10) LE GRANDI MANOVRE DEL 1934. [The Italian maneuvers in August, 1934.] Colonel Biondi-Morra

(See abstract, page 88.)

(11) METODO RAPIDO PER L'IMPIANTO DEL PROGETTO DI MASSIMA DI UNA BOCCA DA FUOCO. [Ballistic calculations.] Lieut.-Colonel Sacchi

(12) CASO CONCRETO DI RIFORNIMENTO IDRICO DEI COMANDI REPARTI E SERVIZI DI UNA DIVISIONE OPERANTE. [Water supply for a division.] Lieut.-Colonel Biagioli

ROYAL AIR FORCE QUARTERLY (Great Britain)

January 1935

- (1) THE AIR POSITION
- (2) SPEED FOR ECONOMY
- (3) ON DISCIPLINE. "Anthony"

ROYAL ARMY SERVICE CORPS QUARTERLY (Great Britain)

November 1934

- (1) SOME NOTES ON R.A.S.C. COMPANY TRAINING
- (2) THE DEVELOPMENT OF THE COMPRESSION IGNITION ENGINE AND ITS POSSIBLE EFFECT ON R.A.S.C. WORK IN WAR
- (3) THE ORGANIZATION AND OPERATION OF A MOTOR AMBULANCE CONVOY
- (4) SUPPLIES AND THE DIVISION IN A WITHDRAWAL
- (5) THE APPLICATION OF MODERN INDUSTRIAL METHODS TO R.A.S.C. ORGANIZATION IN WAR
- (6) SOME RECENT DEVELOPMENTS IN FIELD BAKING

ROYAL ENGINEERS JOURNAL (Great Britain)

December 1934

- (1) A BRIDGING EXERCISE. Lieut.-Colonel Fitzpatrick
- (2) THE NILE CONTROL AND IRRIGATION PROBLEMS OF EGYPT. Captain Noakes
- (3) TEMPORARY ROADS DEPARTMENT. VI. ODDS AND ENDS. By "Roadsurvey"
- (4) SOME SERVICE APPLICATIONS OF THE HIGH SPEED DIESEL ENGINE. Captain Blagden

ROYAL TANK CORPS JOURNAL (Great Britain)

December 1934

- (1) WITH THE TANKS AT PASSCHENDAELE. Captain Hickey

SANCT CHRISTOPHORUS (Germany)

By Captain G.B. Guenther, Cavalry

July 1934

(1) **DIE MOTORISIERUNG DER WAFFEN IN FREMDEN HEEREN.** [Motorization in foreign armies.]

This article shows in what manner foreign armies are utilizing and substituting motors in the various armies to increase their mobility and fire-power. Illustrations show various experimental types of motor vehicles now in use by nations who have taken the lead in motorization.

(2) **FRANZÖSISCHE ANSICHTEN ÜBER DAS BERUFSHEER. FORDERUNG EINER MOTORISIERTEN UND GEPANZERTEN ARMEE.** [French observations concerning the professional army. Demand for a motorized and mechanized army.]

A reprint from the French "Political and Parliamentary Review" in which the author, Charles de Gaulle, recommends that France maintain and equip a motorized and mechanized regular army of 100,000 men.

The total length of the French border from Switzerland to the North Sea is 700 kilometers, along which there are few natural obstacles. Paris is situated a distance of 6 marching days for foot troops, 3 hours' marching time for motorized units, and 1 hour's flight from the eastern frontier. This city is the hub of France's commerce and communications system and it is one of the nation's main problems to provide for its protection. A defeat or disastrous battle on the eastern frontier at once endangers Paris. It is therefore of paramount interest that France initiate and prepare for her defense against all types of modern weapons.

The vital question is which of the modern armaments is to be increased and utilized. Many problems of resources such as available materials for armored vehicles, mechanics, and trained personnel instructed in the tactical employment of the larger mechanized units, confront the authorities in making the decision.

In order to have available at the outbreak of war an army highly trained in the technique and employment of the new weapons and arms, there must exist in peace time a selected group of specialists who have prepared plans for and operated with mechanized units. These requirements can only be answered by having a strong mechanized Regular Army.

Concrete forts strengthen the defense zone and reduce the necessity of a continuous front. To insure that a weapon is at hand to be used for counterattacks it is essential that there be provided motorized and armored mechanized units. With the addition of these units there will come the demand for greater supplies and highly trained personnel all of which must be provided. To insure that these are forthcoming, the author recommends the utilization of and the providing for such raw materials in reserve so that when the next war arrives there will be no shortage. The extension of the period of service for the French soldier is recommended to insure the training of specialist mechanics.

Whether the French obtain the army of 100,000 by mechanizing or by extending the period of service of its soldiers is not the important question. Germany is chiefly concerned with the question: Where will be the critical concentration area of the French Mechanized Forces?

(3) **VON DER MOTORISIERUNG DER LANDWIRTSCHAFT.** [Motorization of farm implements.]

Germany has established a national system of schools in which instruction is given to farm personnel in the operation and repair of farm motor vehicles.

(4) **DIE REICHS-STRASZENVERKEHRS-ORDNUNG.** [The national highway traffic regulations.]

August 1934

(5) **NEUE KLEINKAMPFWAGEN FREMDER HEERE.** [Latest light tanks in foreign armies.]

Developments in light tanks as related in this article consist chiefly of minor changes in armament. In some armies small trailers have been added to the light tank in which reserve ammunition is carried.

France has produced a new one-man tank operated by the occupant in a prone position. Foreign critics have given many reasons why this type of tank is impractical.

The writer emphasizes the fact that in adopting light tank models for future use such types must be designed as will afford production in mass and for which there is an abundance of raw material.

(6) UEBER SCHWIMMKAMPFWAGEN IN FREMDEN HEEREN UND IHRE BEABSICHTIGTE VERWENDUNG. [Amphibian tanks in foreign armies and their future employment.]

(7) WEITERE FORTSCHRITTE AUF DEM GEBIETE DER HEERESMOTORISIERUNG IN FREMDEN HEEREN. [Further progress in the field of motorization and mechanization in foreign armies.]

With the improvement in the mechanized vehicles in the modern armies of today there has developed a change and increase in the number and kinds of units operating and employing them in tactical exercises.

The author quotes the status (taken from press reports) of mechanized units in the following foreign armies:

Belgium: 2 companies of 300 Renault type, armored vehicles.

Great Britain: 16 companies of 600 Carden-Loyd, light and medium Vickers type tanks and armored cars.

Finland: 1 company of 16 Renault type armored cars.

France: 75 companies of 4300 armored vehicles of all types, Renault, 2 C, 3 C and D.

Italy: 14 companies of 150 Carden-Loyd and Fiat armored cars.

Japan: 27 companies of 750 light and medium types of armored vehicles.

Yugoslavia: 2 companies of 120 Renault armored cars.

Poland: 24 companies of 600 Renault, Carden-Loyd types of armored vehicles.

Russia: 36 companies of 600 Carden-Loyd, Vickers and Christie armored vehicles.

Spain: 1 company of 90 light armored cars.

Czechoslovakia: 3 companies of 200 Renault and K.H. 50 types of armored cars.

England has taken the lead in the higher organization and has maintained a mechanized brigade composed of three mixed mechanized battalions, each battalion composed of three companies.

September 1934

(8) WEITERE FORTSCHRITTE AUF DEM GEBIETE DER HEERESMOTORISIERUNG IN FREMDEN HEEREN. [Further progress in the field of motorization and mechanization in foreign armies.]

Japan has recently produced a new six-wheel type armored car similar to the United States Cunningham car. Nine large forces of armored vehicles are now stationed in Manchuria.

England has made provision for the procurement of tractors of the Vickers and Carden-Loyd types to be used in her motorization of artillery, infantry, and supply trains.

A general survey of the latest developments in motorization and mechanization is contained in this article.

(9) EINIGE GEDANKEN UEBER DIE MOTORISIERUNG DES NACHSCHUBES FÜR DIE FECHTENDE TRUPPE. [Thoughts on the motorization of the supply trains of combat troops.]

SIGNAL CORPS BULLETIN

November-December 1934

(1) IS THE TELEGRAPH BEING UTILIZED SUFFICIENTLY BY THE DIVISION AND LOWER UNITS? Captain Sweet

(2) INDUSTRIAL MOBILIZATION. Captain Burdick

(3) PRACTICABLE MEANS FOR IMPROVING LIAISON BETWEEN THE INFANTRY AND ARTILLERY. Major Gurney

(4) THE SPIRIT OF TECHNIQUE. (Translated from the German by Captain W.H. Murphy)

(5) THE CONTRIBUTION OF THE CRYPTOGRAPHIC BUREAUS IN THE WORLD WAR. (VII) Gylden

WEHR UND WAFFEN (Germany)

By Major F. Doring, Infantry

July 1934

(1) DIE MOTORISIERUNG UND IHRE EINWIRKUNG AUF DIE KRIEGFÜHRUNG. [Motorization and its effect on the conduct of war.] (I) Lieut. General v.Schwarte

General v.Schwarte has collected from all available sources information concerning the progress of motorization in foreign armies, which are unrestricted by the Treaty of Versailles in their development, and publishes it here for the benefit of the German Army, which in this respect is far behind the others. As regards definitions he calls mechanized formations, motorized, and motorized troops as "on trucks." The first army motorization was pre-war and consisted in the formation of motor transport supply and ammunition columns. The first large-scale use of motor transport for moving troops is the historic case when in September, 1914, the Governor of Paris, General Gallieni, used taxi-cabs for sending reinforcements to General Manoury, who was engaged with the German right wing. After this, motorization scored many triumphs, for it was the motor transport columns which kept the defenders uninterruptedly supplied with fresh troops, weapons, and masses of ammunition, which were the cause of the successful defence of Verdun, in the Somme battle, in the battles in Flanders, and against the German 1918 breakthrough.

General v.Schwarte finds himself constrained to admit in advance that the ideal case for all armies would naturally be the complete motorization of all units. Expense alone would be sufficient to prohibit this, but there are several other good reasons, which compels one to rest content with what is attainable, only that what is attainable should be made as nearly perfect as possible.

Considering only the leading unrestricted nations, the present state of motorization, taking the arms in turn, is: The infantry for a long time after the war remained untouched; then Great Britain, France, Italy, and to some extent the United States introduced motor transportation for their regimental trains. Great Britain, which has always led in motorization, then started to free the overburdened infantryman of his load and to carry it after him on trucks, which resulted in improved marching performances, shortened length of columns. The saving in drivers was also considerable. The vehicles used were chiefly cross-country six-wheelers, and in the first line ordinary trade $1\frac{1}{2}$ -tonners. The next step was the equipping of staffs and signal troops with cross-country cars and motorcycles, and finally the provision of small caterpillars for carrying the heavy infantry weapons, machine guns, trench mortars, and infantry guns. France has gone one step further in incorporating in the rifle company small tanks. Italy, Czechoslovakia, the United States and, it is believed, also Russia, are doing the same experimentally.

The partial motorization of infantry brigades gave satisfaction and has now become universal. The next step was to provide more mobile brigades. Again Great Britain was the pacemaker, followed by France and the United States. The completely motorized brigade can travel fabulous distances and thus apply complete surprise with the full fire-power of the infantry brigade. It has, however, the disadvantages that all troops are carried in non-fighting vehicles. The tactical situation usually compels early detrucking and a loss of much of the time gained; the vehicles are very vulnerable; ground reconnaissance and security, even with armored

cars, are incomplete. Consequently in 1932 France and Italy started trials of sending troops to the battlefield in armored vehicles. All nations have today some completely motorized infantry brigades, while France has even motorized divisions.

As regards field artillery, France, Belgium, the United States, Czechoslovakia, and Poland either carry the gun on trucks, or on special low well-sprung trailers. For cross-country work they need also tractors, and a further complication is that the latter, not being suitable for roadwork, have also to be carried on trucks until required. The tactical disadvantages and the clumsiness of this method led Great Britain, and later also the United States, to a new solution. The gun is now attached direct to its tractor, which is either a six-wheeler truck, or a four-wheeler tractor, or a light and very fast caterpillar. The French in the 1934 manoeuvres tried the third method. If considered necessary, the gun wheels may be rubber-tired, in which case for firing, the axles are raised by means of folding segment-pieces, which keep the tires off the ground.

The ideal vehicle is the automobile caterpillar gun-carriage, but on account of expense it is but sparingly provided. It is usually found only with anti-aircraft artillery and tanks accompanying artillery.

France heads the list in motorization of light artillery with about 60 completely motorized field batteries and 30 more special batteries on motor-carriages. Countries like Czechoslovakia, Poland, and Belgium, which are on friendly terms with France, are well provided with fully motorized light batteries. Some distance behind follow Great Britain, the United States, and Italy.

Owing to weight, heavy howitzers and the guns of the medium artillery are not as a rule loaded, or towed by ordinary motor transport. Only France and Czechoslovakia carry guns and caterpillars on special motor transport. Nearly all the other countries prefer four-wheeled tractors or caterpillar tractors. Especially remarkable is the fact that in England the unarmored chassis of the light tank is used as a tractor. This solution has distinct advantages in the matter of mass-production. At the head of the motorization of medium artillery stands Italy with 66 such batteries, followed by Great Britain, France, Czechoslovakia, United States, and Belgium. The United States alone has 4.8-inch guns and 6.2-inch howitzers on self-propelled carriages.

With heavy artillery we come to a factor where the great weights necessitate load-distribution. Almost exclusively special vehicles are used, and these are generally four-wheel or caterpillar tractors. It is interesting that England in 31 heavy batteries uses a four-wheeled tractor bearing a strong resemblance to the German pre-war Krupp-Daimler. Italy is again first with 48 batteries; France, Great Britain, and Czechoslovakia come next, averaging over 30 batteries apiece; then, far behind, Poland and the United States.

(2) LUFTSCHUTZ IN EINEM FREI GERÜSTETEN LAND. [Antiaircraft defense in a nation armed without restriction.] By "T"

The development of the air arm since the War has given rise to a school of thought, of which the Italian General Douhet may be taken as a representative, which teaches that future wars will be decided exclusively in the air. In a future war there will be no time for mobilization as in 1914. Speed, surprise, and strength of blow are the characteristics of air power, and in order to escape this deadly peril, its possibilities must be clearly understood. The author believes that anti-aircraft defense troops will soon become a main separate arm of the service.

(3) TRINITROTOLUOL ODER PENTAERYTHRITETRANITRAT. [Trinitrotoluol or Pentaryt?] Lieut.-Colonel Justrow

(4) EINE NEUE PANORAMAKAMERA FÜR FILMAUFNAHMEN. [A new panorama camera.] Leonhardt

August 1934

- (5) DIE MOTORISIERUNG; UND IHRE EINWIRKUNG AUF DIE KRIEGSFÜHRUNG. [Motorization and its effect on the conduct of war.] (II) Lieut.-General v.Schwarte

In his second instalment, General v.Schwarte speaks of two distinct schools of thought about mechanization and motorization. Great Britain, Russia, and lately Poland, belong to the school which believes in complete mechanization and motorization, while the United States, which formerly belonged to this school, has changed to less extreme views since 1932.

An interesting reason for Great Britain's attitude is given. "England, regarding this development as inevitable and no longer judging the question by whether these revolutionary changes are desirable or not, takes the point of view that a repetition of the Great War and its method of fighting would wreck our whole civilization. It is believed in that country, that through the mechanization of armies such a struggle, lasting for years and causing enormous destruction of values, can be avoided. Only mechanized forces can win back the mobility necessary for a decision." There are also other reasons why Great Britain, as opposed to other European great powers, leans towards these views. As an island, thanks to its huge fleet, it is not subject to attack. Besides that, it returned immediately after the War to its traditional small professional army, which consists of first-class soldiers and has in the colonies plenty of opportunities of gaining practical experience of war. One more reason, and that a most weighty one, is that Britain possesses a highly developed armament industry, which, in keen competition with those of France and Italy, finds itself compelled, by considerations of exports, continually to create better and more modern equipment. The second school of thought consists of France, the majority of the powers which are on friendly terms with France and Italy. As he did with Great Britain's views, the writer traces and explains France's attitude. He points out that all nations, unrestricted in their armament by the Treaty of Versailles, have realized the truth that, although today as ever, it is the spirit which decides the war, and that spirit must be with the machine and not without it. Enthusiasm and determination must not be allowed to fail because weapons are inadequate.

- (6) FRIEDENSAUSBILDUNG—KRIEGSERFAHRUNG. [Peace training and war experience.] Lieut.-General Marx, Retired

General Marx's reminiscences start at Longwy in August, 1914, where he was a battery commander in action in mobile warfare for the first time. He shows with wonderful memory and with much humor the mistakes he made, some new ones of his own, but mostly due to peace training.

- (7) DIE STREUUNG DER GESCHÜTZE UND MINENWERFER ALS KERN DER SCHIESZLEHRE. [The laws of dispersion as the basis of the theory for gunnery.] Captain Schneider

September 1934

- (8) UEBER DEN ABGANGSFEHLER EINES GESCHOSSES INFOLGE VON SCHIFFSBEWEGUNGEN. [Departure errors of a projectile due to the motion of a ship.] Hänert

- (9) ERSCHIESSEN DER B.W.E. [Climatic correction by shooting.] Major Böttcher

- (10) TIEFFLIEGERANGRIFFE AUF ARTILLERIE UND DEREN ABWEHR. [Attacks of low-flying planes and defense against them.] Colonel Blümler

The article is written for artillery, but it concerns equally all those who have to march or who are sometimes even more susceptible to attack by low-flying planes, because they are fixed to one spot, viz., in building a bridge at river crossings. The best way to avoid a panic, such as the Germans claim to have caused among the British in 1918, when the latter were engaged in crossing the Somme via bridges near Brei and St. Christ, is for the troops to have full confidence in their ability to deal with low-flying planes. The troops must be able to look after themselves and that is best achieved by having troops equipped with suitable small caliber

weapons. For this purpose, the "Field Artillery Journal" says, that the Browning automatic rifles, fired from the shoulder, are twice as effective as machine guns. The Italians and Americans have adopted this solution, according to the author. Reconnaissance is essential, as the time for action is very much restricted.

(11) VORTEIL DER ERDBEOBACHTUNG. [Advantages of ground observation for artillery.] By "K. 5"

WISSEN UND WEHR (Germany)

By Captain G.B. Guenther, Cavalry

July 1934

(1) DIE ANWENDUNG CHEMISCHER KAMPFSTOFFE BEI LUFTANGRIFFEN AUF STÄDTE UND INDUSTRIEBEZIRKE. [The employment of gas and chemicals in air raids on cities and industrial districts.] Wirth

The modern air arm has been developed to the extent that it can carry large quantities of chemicals in various types of containers for the purpose of making air raids.

The author discusses chemical agents best suited for this purpose, basing his reasons on World War results, the most efficient methods of employing these agents and the effect which modern antiaircraft equipment will have on air units which are to be used in the conduct of air raids on cities and industrial centers.

(2) DIE RÜCKFÜHRUNG DES DEUTSCHEN BESATZUNGSHEERES AUS DER UKRAINE 1918/19. [The withdrawal of the German Army of Occupation from the Ukraine, 1918-19.] Frantz

Concurrent with the conduct of the World War, Germany had dispatched forces to the Ukraine whose total had reached about 300,000 troops by 1918. The expedition, with its headquarters in Charkow, was sent into Russia to insure that the natural resources of this section be protected and reserved for Germany in case the Central Powers won the war. When the Russian Revolution occurred this garrison was increased to prevent an invasion by and the final control of the Ukraine by the Bolshevik forces.

After the Armistice Germany at once made preparations for the withdrawal of this force. The attitude of the population became gradually more hostile. Roving bands of Russian deserters, in some cases armed, in many instances abused the local population, plundered public facilities and damaged transportation systems to the extent that the supply and later evacuations of the German forces were seriously threatened.

This article describes the march to and the arrival of the German Ukrainian Army of Occupation within the territorial limits of Germany, the suffering and privations endured, and the conditions of the units upon their return to the Fatherland.

(3) KRITISCHE BETRACHTUNGEN ZUR MARNE-SCHLACHT. [Critical observation of the battle of the Marne.] Lieut.-Colonel Müller-Loebnitz

This is a discussion in which an attempt is made to show why the Allied commanders failed to take advantage of the German retirement after the First Battle of the Marne.

(4) HERZOG FERDINAND VON BRAUNSCHWEIG, DER SIEGER VON KREFELD UND MINDEN. [Herzog Ferdinand von Braunschweig, the conqueror at Krefeld and Minden.] Captain Hoppe

August 1934

(5) ANSPRACHE AM 2. AUGUST 1934 IM REICHSARCHIV. [Address of 2 August, 1934, by Reichsarchiv Director.]

A biographical sketch of Field Marshal von Hindenburg.

(6) DEUTSCHES SOLDATENTUM UND DEUTSCHER SOZIALISMUS. [German militarism and German socialism.] v.Borstell

(7) DIE KÄMPFE AM NIEDERRHEIN UND AN DER RUHR IM ANSCHLUSS AN DEN KAPP-PUTSCH. [The conflicts on the Lower Rhine and on the Ruhr incident to the Kapp Rebellion.]

September 1934

(8) DER FELDHERR IN FREIHEIT UND BINDUNG. [The development of a commander in peace and in war.] Colonel v.Oertzen

The requisites of a good commander are discussed by the author pursuant to his study of the lives of some of the outstanding military leaders.

A well-planned education giving the fundamentals of the military science and tactics with liberty of thought and time for study and reflection must be provided to develop an elastic mind and confidence in making decisions.

Quotations by some of the most prominent military leaders are given in which are stressed the requisites for capable leaders.

The author considers physical fitness and a knowledge of human nature very important.

(9) UBER DIE NOTWENDIGKEIT EINER KRIEGSTHEORIE. [Concerning the necessity for a doctrine of war.] Colonel v.Oertzen

The question is asked, can a commander, in view of the changing political situations, diplomatic inference, and methods of warfare, adhere to the old war doctrines and principles?

The works of Clausewitz on the principles and doctrines of war have been the orthodox teaching of Germany since the period during which they were written. Freytag-Loringhoven made an attempt to bring these up to date, and succeeded to some degree.

Since wars are conducted according to the dictates of the age in which they are fought, and under newly developed doctrines of the previous war, there now exists a need for a revised and modern doctrine of war in Germany.

The mission of preparing such a doctrine has been assigned to the German Society of National Defense.

(10) GENERALFELDMARSHALL HELMUTH GRAF V.MOLTKE UND DER GENERALSTAB, VOM WELTKRIEGE GESEHEN. [Field Marshal Helmuth v.Moltke's influence on the General Staff considering the World War.]

This is a biographical sketch showing the early training and background of Moltke, his traits of character, and qualifications for the high office which was finally held by him. Due to his broad vision, knowledge of the pre-war political situation, and his personality, in addition to his professional qualifications, he established far-sighted policies for the organization of the General Staff.

FOREIGN POLICY ASSOCIATION: FOREIGN POLICY REPORTS

7 November 1934

- (1) GERMANY'S TREND TOWARD ECONOMIC ISOLATION. DeWilde

21 November 1934

- (2) LIBERIA, THE LEAGUE AND THE UNITED STATES. Koren

5 December 1934

- (3) THE MUNITIONS INDUSTRY. AN ANALYSIS OF THE SENATE INVESTIGATION, SEPTEMBER 4-21, 1934. Stone

19 December 1934

- (4) LATIN AMERICAN POLICY OF THE ROOSEVELT ADMINISTRATION. Popper

2 January 1935

- (5) THE FUTURE OF THE SAAR. DeWilde

16 January 1935

- (6) THE ECONOMIC SITUATION IN ITALY. THE CORPORATIVE SYSTEM. Dean

30 January 1935

- (7) THE ECONOMIC SITUATION IN ITALY. ITALY IN THE WORLD CRISIS. Dean

Section 5
ACADEMIC NOTES, C. & G.S.S.

REPRINT OF CURRENT SCHOOL MEMORANDA, WHICH AFFECT
INSTRUCTIONAL PROCEDURE OR TACTICAL DOCTRINES.

CONTENTS

	Page
Doctrine.....	141
Field Orders.....	142
Utilization of Terrain.....	144
Notes on Wellington.....	148

DOCTRINE

[Memorandum of 30 December, 1934]

1. The following extract from the Report of the Chief of Staff for 1934 is published in order that all instructors may be informed and all instruction accord with it:

a. Nevertheless, in the absence of modern equipment in all essential classes, we are compelled to train and prepare the Army too distinctly in the 1918 pattern, whereas our effort should be to look ahead and mold it to the requirements of future emergencies. Although the exact and detailed nature of any conflict of the future cannot be foreseen, it is not difficult to distinguish those changes in general outline which must result from the increased mobility and fire-power assured by weapons and equipment already existing.

b. Future warfare will witness:

(1) The maximum utilization of relatively fast machines for transportation, with consequent greater frontages in strategic deployments;

(2) Increased unit fire-power through employment of weapons of great efficiency, with a resultant wider dispersion in tactical formations;

(3) Increasing efforts by all commanders to utilize the strategic and tactical mobility of machines so as to attack by surprise, particularly from the flanks;

(4) Avoidance, so far as possible, of frontal assaults against strongly held positions, even where the attack is supported by combat vehicles and other types of modern weapons;

(5) Growing utilization of air forces for information and for bombardment of sensitive points in the enemy's supply organization.

c. To enhance speed, armies will seek to:

- (1) Limit the physical size of combatant elements and
- (2) Will strive to attain perfection in supply and maintenance arrangements.

Unified and effective control throughout such fast-moving elements will demand a like perfection in signal communications.

FIELD ORDERS

[Memorandum of 1 September, 1934]

1. FIELD ORDERS.—Our whole military fabric rests on the trust that one soldier reposes in another. The commander trusts his subordinate to carry out his wishes just as the subordinate trusts his commander to give the right orders. In theory, therefore, if a subordinate can not be trusted to carry out the role which devolves upon him he should be removed. In practice, however, the personal factor must be considered and the amount of independence given to a subordinate will vary with his known character or reputation. Moreover, in practice if a subordinate makes a mistake the commander sometimes can interfere to save the situation.

But though a commander may rightly provide in his mind for contingencies, he must be very careful to avoid providing in his orders for things too far in advance. It is evident that, as new phases are ever arising, the orders relating to any one of these particular phases should definitely relate to it alone. It is absurd to attempt to give instructions in detail to meet the various possible contingencies that may occur. Experience in past wars shows that when this has been attempted some unforeseen event has usually occurred which has taken the subordinate leader by surprise. The anticipatory instructions have interfered with his initiative and, in addition, tend to cause him in the crisis to await more applicable instructions.

2. MISSION FIELD ORDERS.—In the past we have often used what may be called mission tactics and mission orders.

Under this system, instructions and orders are not prescribed in minute detail; the reason being that the commander on the ground is the only person who can correctly judge existing conditions and take the proper action when a change occurs in the situation. In addition to the tactical reason there is a strong psychological reason for such tactics and orders. The commander who is given a mission and made responsible for results will normally accomplish more because he can act in accordance with his own individuality.

A famous historical example of this method is General Lee's orders to General Jackson for his wide envelopment of the Federal right flank at the battle of Chancellorsville. As a general principle it may be stated that when an action for which orders are to be issued takes place on terrain under supervision of a commander and at a time not too distant, detailed combat orders may be issued providing for the coordination of all means under control of the commander. In the attack, this will ordinarily occur in frontal action and close-in envelopment. On the other hand, when the action takes place at a distance, on unfamiliar terrain, and at a future time when conditions may be different from those at the time of the issue of the order, a mission type of combat order should be employed. In the attack this will ordinarily occur when providing for a wide envelopment.

See Changes No. 1, *Staff Officers' Field Manual*, Part One, C. & G.S.S., July 1, 1934.

3. DEPARTING FROM THE LETTER OF AN ORDER.—Notwithstanding the greatest skill and care in framing orders, unexpected local circumstances may render the precise execution of an order unsuitable or impracticable. In such circumstances the following principles will guide the recipient of an order in deciding his course of action:

a. A formal order will never be departed from either in letter or spirit:

(1) So long as the officer who issued it is present.

(2) If the officer who issued it is not present, so long as there is time to report to him and await a reply without losing an opportunity or endangering the command.

b. If the above conditions do not exist, a departure from either the spirit or letter of an order is justified if the subordinate who assumes the responsibility bases his decision on

some fact which could not be known to the officer who issued the order, and if he is satisfied that he is acting as his superior, were he present, would order him to act.

c. If a subordinate does not depart from the letter of his orders when such departure in the circumstances of paragraph b above is clearly demanded, he will be held responsible for any failure which may ensue.

d. Should a subordinate find it necessary to depart from an order he will immediately inform the issuer of it, and also inform the commanders of any neighboring units likely to be affected.

UTILIZATION OF TERRAIN

[Memorandum of 2 October, 1934]

General Influence of Terrain

	Paragraph
Definition.....	1
Decisive influence.....	2
Lee's eye for terrain.....	3
Military influence of terrain depends upon the situation.....	4
Mission.....	5
Execution of the mission.....	6
Enemy.....	7
Offensive as well as defensive.....	8
Necessity for study of terrain.....	9

1. DEFINITION.—Terrain is ground, or territory, or a portion of the earth's surface, considered in relation to its utilization and influence in military operations.

2. DECISIVE INFLUENCE.—The character of the terrain often exercises a decisive influence upon the course of operations.

3. LEE'S EYE FOR TERRAIN.

* * * * *

"Again, the country over which the troops moved and fought was difficult in the extreme. The maps available were few and bad. Virginia, the theater of war, was thinly populated—not half opened up. A great part of the State was covered with primeval forest. There were immense tracts of swamp and jungle which were terra incognita to all but a few farmers and their negro slaves. The roads were as few and indifferent as the maps.

* * * * *

"But south of the river was a tract of peculiar country, a district which was simply a jungle, significantly called the 'Wilderness of Virginia.'

It extended about 10 miles south from the Rapidan, nearly as far as Spottsylvania Courthouse, and through this jungle lay the Federal lines of march. Before Grant could get out into the open country he had to pass through the Wilderness. The Confederates, nearly all of them Virginians, knew this district well. Lee had already fought a successful battle against overwhelming odds in those very thickets, and he determined to let Grant entangle himself in the Wilderness and there attack him. In that most intricate country where artillery could not be used, where men familiar with the paths and clearings would have a good advantage over far superior numbers, he would throw his 62,000 men on Grant's 130,000.

* * * * *

"Lee relied on the difficulty of the battlefield, on the topography with which he was familiar, and of which his opponents knew next to nothing and could find out nothing. So greatly was Grant hampered by the lack of roads, that he was unable to reach the open country south of Spottsylvania. Had he possessed greater freedom of maneuver, had he not been compelled to move his enormous train by two indifferent roads, it is extremely probable that he would have intervened between Lee and Richmond, and have met him on ground which offered no peculiar advantage, as did the Wilderness to the Confederates.

* * * * *

"If you care to study the campaign closely, it is worth while noting with what skill Lee's positions were selected. His flanks at Spottsylvania, at the North Anna, and at Cold Harbour, were so secured by streams that it was very difficult indeed for his opponent to maneuver without crossing one of these streams, and so dividing his army. It was not only the intrenchments, but the natural features of the ground also on which Lee relied in his defensive tactics. *His eye for ground must have been extraordinary.* The campaign was fought over a very large area, an area of very close country, with few marked natural features; and yet in the midst of woods, jungle, and streams, with very little time at his disposal, he always seems to have selected positions than which none could have been stronger. *His eye for ground, then had much to do with his successful resistance to Grant's overwhelming numbers; and this eye for ground he possessed in common with all generals who are acknowledged as masters of war.* Now, with all respect to the text-books, and to ordinary tactical teaching, I am inclined to think that the study of ground is often overlooked, and that by no means sufficient importance is attached to the selection of positions, to the rapid adaptation of hasty intrenchments to the field of battle, to the recognition of 'tactical' points, i.e., 'key points,' and to the immense advantages that are to be derived, whether you are defending or attacking, for the proper utilization of natural features.

* * * * *

"Napoleon, like Lee, made such remarkable use of ground that natural features played a very great part in many of his victories, and if you visit the scene of some of these victories you will learn a very useful lesson; a lesson of great value to every officer who has any aspirations in the direction of independent command, and this lesson is one in generalship. One of the secrets of Napoleon's extraordinary success will be revealed to you, and these secrets are well worth the learning, for natural features, as we learn from this very campaign we are discussing, can still be utilized with very great effect, and can be utilized in the very same manner as they were by Napoleon. Speaking for myself, I may say that I had visited the battlefields of 1870 very often, and studied them very closely, before I visited any one of Napoleon's fields; but it was not until I went to Jena and Austerlitz that I really grasped what a very important part an eye for ground like Napoleon's, or blindness as to ground like the opponents, at both of these battles, may play in Grand Tactics, that is, in the art of generalship.

When you look at the position of the Allies at Austerlitz, the position that was captured by one of the finest counterstrokes in history, one of the first things you observe is an insignificant village half way up the little hill which formed the center of the position. Napoleon's counterstroke met with such splendid success because when he saw that village and the hills above, he recognized at once the very great advantage which they would give him if he could seize them. To the ordinary observer they do not appear to be a weak point, nor did they seem so to the Allies, who altogether rejected them, or, at all events, took no special precautions for their defense.

"It seems rather a curious thing to say that you can learn the use of ground from books; but to a certain degree you may learn from the campaigns of the great captains how to utilize the ground; you may learn to recognize its importance; and then proceeding to the ground itself, whether at maneuvers in command of troops, or in studying positions by yourself, you can put theory into practice, and gradually acquire that eye for ground without which no man, it is my firm conviction, can ever hope to be a good or even a useful general."—(Henderson.)

4. MILITARY INFLUENCE OF TERRAIN DEPENDS UPON THE SITUATION.—When terrain is under consideration, it should be viewed in connection with the real or assumed tactical situation, since its effect is dependent thereon and it has little significance apart from these other factors. A modification of the situation may completely change the influence of terrain features and may decisively affect the plan of action which should be adopted. For example, certain ground may afford an excellent defensive position yet if the mission and situation require offensive action the position may be of no use whatsoever. Again, in another situation a certain feature may exercise a predominant influence, while in a different situation in the same area that feature may be negligible. It is true that, in a later chapter, we shall study the various typical terrain forms apart from a specific situation; yet any conclusions as to influence can only be general and tentative except where a situation is assumed or implied. In weighing the influence of terrain, we must avoid the errors of certain past periods of military history; in certain of these the terrain was allowed little or no influence in the theory of tactics; at other times it was made to prevail over everything else. Therefore, any study of terrain must always be made in connection with the mission, with the situation of the enemy (G-2 Situation), and with the situation of our own forces (G-3 Situation).

5. MISSION.—Terrain, the influence of which is felt throughout all phases of strategy and tactics, frequently determines the mission itself. For example, the mission may

be the capture or protection of a terrain feature, as a defile, some critical line of observation points, a railroad line, or some other vital element. And, furthermore, although the mission may not, in the general case, be stated in terms of terrain, it can usually be translated into terms of terrain, and so staked out on the map. For example, victory in attack is frequently indicated by the possession of the battlefield, and hence the purpose may, in part, be visualized as capturing a certain area within the enemy's lines, such as the artillery position; the mission in defense may be expressed as denying to the enemy a certain vital terrain feature.

6. EXECUTION OF THE MISSION.—The terrain again exercises a strong influence upon the execution of the mission. There is hardly a general plan of operations or a detail of its execution which is not affected to greater or less degree by the terrain.

7. ENEMY.—A commander who knows how an enemy will maneuver, and where that enemy will place his strength and weakness in attack or defense, is probably in a position to win a victory. But information of the enemy is usually incomplete, vague, and misleading. On the other hand, the terrain frequently affords the best guide for determining the capabilities of action of the enemy. The commander must bear in mind that the terrain constantly influences the operations of the enemy as well as those of his own troops, and by studying the terrain from the point of view of the enemy, he can draw valuable conclusions as to the capabilities of enemy action and the extent to which they are favored by the ground.

8. OFFENSIVE AS WELL AS DEFENSIVE.—It is not always realized that the influence of terrain is fully as important in the offensive as in the defensive. Both the attacker and the defender utilize the ground to favor the operations they have in view; the defender uses it to assist in the organization of his defensive fire-power; the attacker utilizes it to help him avoid that defensive fire-power and break up the defensive organization. For the defensive, it affects the choice of the position to be occupied and practically all of the dispositions upon the position. For the offensive, it influences the direction of march, the objective of attack, the direction and location of the main effort, the plan of maneuver, and many other matters.

9. NECESSITY FOR STUDY OF TERRAIN.—“When you determine to risk a battle, reserve to yourself every possible chance of success.”¹ Subject to the requirements of speed of operations, the commander cannot afford to neglect any of the factors which may lead to success in his undertakings, and terrain is one of the most important of these. In order to utilize terrain to the greatest advantage, it must be understood. In order to understand it, it must be studied; the commander must have a general knowledge of typical land forms and of the influence of terrain upon various types of tactical operations. Also, in the application to any particular situation, information as to the topographic features of the battlefield must be gathered by map study and reconnaissance in order that conclusions may be drawn therefrom. Skill in the utilization of terrain can be obtained by study and practice, and every officer should be trained in its use.

NOTES ON WELLINGTON

[Memorandum of 2 February, 1935]

1. GENERAL.—*a.* All authorities of note, though differing in their view as to how far back soldiers should go in military history in order to gather, from the past, lessons applicable to the present, seem agreed on one proposition. That is, from the period when conditions of war compelled all armies to protect a long line of supplies or communications—that is from days of Wellington and Napoleon—the principles of moving armies beyond the range of modern weapons have altered little.

Napoleon and Wellington were born the same year. Wellington was a victorious commander in India at thirty. He spent seven years of patient and successful warfare in the Peninsula, where he defeated in turn many of Napoleon's most brilliant marshals. He reached his climax when, with inferior forces, he defeated Napoleon himself at Waterloo.

The campaigns of Wellington against Napoleon and his marshals remain to this day models for students.

¹Napoleon.

Wellington's campaigns typify the principle of the active defense. Napoleon's those of the attack.

b. Wellington's tactics and strategy as illustrated in his campaigns have not had the prominence in instruction that their importance demands.

Wellington was a skilful organizer. He ably applied his means though frequently they were far from ample. He was cool and cautious at the outset but when he decided to act, he was bold and self reliant. He was quick in handling his troops, vigilant and undaunted on the battle-field, and completely triumphant. He stands as the great exponent of the defensive principle in battle just as Napoleon represents the principle of the offensive. At Waterloo, the great exponent of the offensive with superior numbers was defeated with inferior numbers by the great exponent of the active defense.

For the purpose of directing attention to Wellington's views, the following notes have been prepared.

2. THE WELLINGTON STRATEGICAL DOCTRINE.—a. In considering the long list of campaigns of Wellington the thought naturally arises how completely he grasped the strategical principles of war. Their application to modern war requires little change. His care of his line of communications was so watchful and constant that Napoleon considered it his main characteristic.

b. The following may be said to include the more important of Wellington's strategic doctrines.

(1) Little success can be expected from a mere frontal attack. Attention must always be turned to the flanks of the enemy position.

(2) Very large concentrations of troops except for battle are in themselves a calamity. The army that is concentrated in one place is difficult to supply and can never be billeted; it cannot march; it cannot operate; it cannot exist at all for any length of time; it can only fight.

(3) Any commander who wishes to close with his enemy must not conduct his advance in one body on few roads. To keep his units separated on many roads as long as possi-

ble, only to concentrate them for the decisive battle, that is the task for the leader of large units.

(4) If the advance has been conducted in such a manner that a final march from different points leads all available forces simultaneously upon the front and flanks of the enemy—strategy will have done the best it can ever hope to do.

(5) Whenever from the existing circumstances, a general cannot act as he would like to act, he should never give up on that account, or remain inactive. He should do the next best thing which in his judgement is open to him. In other words, when his rope harness (to which Wellington likened his tactical and strategical plans, sometimes of a makeshift character, which he was occasionally forced by circumstances to adopt) or any part of it, broke, he tied a knot in it and went on.

3. THE WELLINGTON TACTICAL DOCTRINE.—*a.* Generally speaking, Wellington's plan of battle included the assumption that the enemy would first attack him unless the enemy was greatly inferior numerically, or there were other special reasons not warranting it. Upon this assumption, his occupation of the battle position was based on three requisites.

(1) The troops in main battle line must not be exposed to enemy fire before the moment of actual conflict, i.e., they must be kept under cover as much as possible.

His ideal position was on rising ground, with a long slope in front and a plateau or dip behind it. The infantry was drawn back from the skyline and placed behind the crest. Near it, if there was a dip, or a hundred or more yards away from the edge, if it were flat-topped. There they stood or lay down secure from artillery fire until they were wanted. They moved forward to their actual fighting ground only when the fire-combat of the infantry was to begin.

(2) The battle line (two deep), until the critical moment, was to be screened by a line of skirmishers, impenetrable by the enemy's tirailleurs.

He organized his divisions of a normal strength of 5000 to 6000 men with sufficient light troops to furnish a skirmishing line of 1200 to 1500 men per division.

The French division of equal force had 100 to 1200 tirailleurs per division. As a result the British battle line was not annoyed by French tirailleurs. The only way the French could uncover it was to make a main attack.

(3) The third postulate of Wellington's system was that the two-deep fighting line must be covered on its flanks either by the ground, by cavalry and artillery support, by infantry prolonging the front beyond the enemy's immediate point of action, or by infantry ready to form squares.

There were many instances during the war which demonstrated the terrible risk that the two-deep line might run if it were not properly protected on the flanks.

4. THE FRENCH BATTLE FORMATIONS.—*a.* The French attacked in one of two general formations, the column of double companies or the *ordre mixte*. The column of double companies had a front of 66 men and was probably the normal order.

Napoleon favored a formation called the *Ordre Mixte*. It was recommended by Guibert. It combined some of the advantages of the line and of the column. A brigade or regiment formed alternate battalions in column, and in (3 deep) line. A regiment of 3 battalions of 300 men each took up the *ordre mixte* formation by placing one battalion in line, flanked by two battalions in column. This formation gave a fair amount of frontal fire from the line battalion. The battalions in column gave solidity and protection from a flank attack by cavalry. Napoleon knew that this *ordre mixte* was a costly formation to employ against an enemy whose fire was not subdued. His advance in column was habitually prepared by a crushing artillery fire on the point he was about to assail. In addition, the cavalry stroke in the Napoleonic battle accompanied, if it did not precede, the infantry stroke. The column could be directed very effectively at a point in the enemy line. In the "*Ordre Mixte*," the columns on the ends of the deployed battalion were ready to form square in case of cavalry attack. The British reduced the depth of line deployment

from 3 ranks to 2, because the fire of the 3d rank was difficult, dangerous to front ranks, and practically ineffective.

5. BATTLE FORMATIONS COMPARED.—When an English battalion in line received the attack of a French battalion of equal strength in column, the following obtained. The English front was five times that of the French. The English fire of 600 muskets was opposed to the French fire of 132 muskets. The English fire not only struck the front of the French advancing mass but lapped around its flanks.

Napoleon thought to overcome this British musketry fire by massing his artillery against it. Wellington countered this by his use of the terrain to protect his troops from such fire.

In general, the French tactics were based on striking at crucial points rather than delivering linear battles fought out at equal intensity along the whole front. Columns could be directed on points and could be maneuvered in open country while lines could not. This explains why the French (who always attacked) required a column for their maneuver.

At Waterloo, D'Erlon sent 8 or 9 battalions deployed one behind the other so as to produce a front of only 200 men and a depth of 24. Only one man in twelve was able to use his musket.

The contest between the British and the French was a contest between the line and the column. In the long war between these two countries, the employment of Wellington's tactical principles never failed to give victory when there was any reasonable balance in numbers.

6. WELLINGTON'S CONDUCT OF THE BATTLE.—Wellington, when asked by his second in command at Waterloo what he proposed to do, replied, "You know that Napoleon will attack first tomorrow. He has not given me any idea of his projects and as my plans will depend upon his, how can you expect me to tell you what mine are?"

Later on he said, "Napoleon's Marshals planned their battles just as you might a splendid set of harness. It looks well and answers well until it gets broken and then they are

done for. Now, I make my plans of ropes, if anything goes wrong, I tie a knot, and go on."

Again, "the real reason why I have succeeded in all my campaigns is because I was always on the spot—I saw everything and directed everything myself."

7. WEAPONS EMPLOYED IN WELLINGTON'S ARMY.—*a. The Infantry.*—The rifle used by the British during the Peninsular and Waterloo victories was the Tower musket, the famous "Brown Bess". It was a heavy flint-lock, fitted with a pan, and weighing about nine pounds. Its effective range was about 300 yards, but no accurate shooting could be relied upon at any range over 100 yards. Its calibre was 16. Its missile was a round leaden bullet weighing about 19 to the pound, and made up with a stout paper cartridge of which each man normally carried sixty. In order to secure certain ignition, the butt end of the cartridge had to be torn open by the teeth, before it was placed in the musket barrel and a splash of powder had to be thrown into the pan to catch the spark from the flint and communicate it to the cartridge. The greatest hindrance to musketry fire was rain. Infantry fighting in a rain storm could not count on any certain fire effect. The bayonet was long, triangular, and rather heavy.

b. The Artillery.—Wellington did not use his artillery in the style of Napoleon. He never worked with enormous masses of guns maneuvering in the front line and supporting an attack, as the Emperor did. Only at Bussaco, Vittorio, and Waterloo do we find anything like a concentration of many batteries by Wellington to play an important part in the line of battle. Usually he preferred to work with small units—individual batteries—placed in well chosen spots and often kept concealed till the critical moment. The batteries were dotted along the front of the position rather than massed. In most cases they were regarded only as a valuable support for the infantry, rather than an arm intended to take an independent part in the battle. Several of Napoleon's victories were artillerymen's battles. Nothing of the kind can be said of Wellington's victories.

c. The Cavalry.—Wellington issued a memorandum for the tactical employment of cavalry which probably represents his battle experiences.

(1) A reserve must always be kept to improve a success or to cover an unsuccessful charge. This reserve should not be less than half the total number of sabres and may occasionally be as much as two-thirds of it.

(2) Normally a cavalry force should form in three lines: the first and second lines should be deployed, the third, a reserve, may be in column, but so formed as to be easily changed into line.

(3) The second line should be 400 to 500 yards from the first line, the reserve a similar distance from the second line, if the cavalry is acting against cavalry.

(4) When cavalry is charging infantry, the second line should be only 200 yards behind the first line. This was to permit the second line to deliver its charge without delay against a battalion which has spent its fire against the first line.

Napoleon was fond of massing his horsemen in very large bodies and launching them at the flanks or center of the enemy line.

In general, it may be summed up that Wellington never used his cavalry in mass for a great separate maneuver. He employed them for scouting, for covering his front, for protecting his flanks and sometimes with small units for a blow in battle.

It may be stated as a rule almost without exception that troops in square whether British or French were never broken during the Peninsular War even by very desperate and gallant cavalry charges. When once safely in the square formations troops not only withstood cavalry charges standing still but made long movements over the battlefield in the square formation surrounded by hostile cavalry. On the other hand, if the flanks of a two-deep line were unprotected or the squares when formed were broken by nervousness, the charge was generally fatally effective.

Section 6
BOOK REVIEWS

CONTENTS

	Page
Becker: Verdun. Le premier choc de l'attaque allemande.	155
Chamier: Fabulous monster.	156
Eimannsberger: Der Kampfwagenkrieg.	157
Freeman: R.E. Lee. A biography. Vols. I & II.	158
Gibson: Journal of a soldier under Kearny and Doniphan, 1846-1847.	165
Guedalla: The Hundred Days.	165
Kiritzesco: La Roumanie dans la guerre mondiale (1916-1919).	166
Liddell Hart: A history of the World War 1914-1918.	167
de Ligny: La Division du Maroc aux Marais de Saint-Gond (5-10 septembre 1914).	167
O'Conroy: The menace of Japan.	168
Pages: Campagne de misere. Siberie 1919.	170
Rule: Jacka's mob.	171
Soule: The coming American Revolution.	171
Thompson: Napoleon self-revealed.	172
Voysey: An outline of the principles of war.	172

Becker, General G.—**Verdun. Le premier choc de l'attaque allemande.** [Verdun. The first shock of the German attack.] Paris, 1932—116 pages. M 9403-J.44:6-E

CONTENTS: Dedicate; Les prémisses; L'Attaque de la première position; L'Attaque de la deuxième position; Cartes.

Reviewed by First Lieutenant C.T. Lanham, Infantry

Verdun and its gallant defense will probably be remembered as long as man wars against man—which is to say forever. Twenty years later the countryside still remains battered and scarred in mute testimony of the titanic struggle that held a world breathless.

General Becker adds his personal recollections to the Verdun saga. As deputy chief of staff of the XXX Corps, which sustained the first tremendous shock of the German assault, he was favorably situated to write an accurate and moving account of that agonizing period from 21 to 25 February, 1916. The value of General Becker's volume lies primarily in its great detail and its wealth of human interest incident. He chronicles the desperate hand to hand encounter of the isolated squad with as much fervor as the savage and unavailing counterattacks of the corps commander's last battalions.

To this author it seems incredible that the high command failed to see the German preparations for this wild assault. Every Allied plane that passed over the lines brought back word of feverish activity in the Verdun sector—a spider web of narrow gauge railroads emerged from the one or two lines that had been deemed sufficient before; troops were observed pouring into the area; construction of all sorts was observed from the air. And still the high command remained blind, deeming an attack on Verdun utterly absurd. Verdun was a quiet sector. Troops were sent there to recuperate. A few whiz bangs a day and the work was over. This had gone on for two years. Trenches had caved in. Secondary defenses had not been prepared and in the few places where they had been prepared, had been allowed to fall into ruin. The author credits his corps commander with doing everything possible to right this dangerous

attitude. In some quarters it is believed that what little General Chretien was able to accomplish before the blow fell, prevented the fall of the entire Verdun area in that first great shock. But this the reader must decide for himself.

Chamier, J. Daniel.—**Fabulous monster.** 1934—357 pages.
M 9403-E4-E.43-B92 (WI)

CONTENTS: Friedrich Wilhelm Viktor Albert; August Viktoria; Friedrich III; Wilhelm II; Bismarck; Panorama: (i) At home; Panorama: (ii) Abroad—and Caprivi's end; Relations with England, and the Krüger telegram: 1896; Friends and foes: 1896-1899; The first peace conference and some wars: 1899-1900; Bülow: (i) 1900-1904; Bülow: (ii) 1900-1904; The Russo-Japanese War and Morocco; The new grouping: 1904-1905. Questions of security; Wilhelm von Hohenzollern; The November storm: 1905; The stone starts rolling: 1905-1912; English interlude: The Morocco shock and the Haldane approach; Last hours: 1912-1914; Serajevo: 1914; War: 1914-1917; Downhill: 1917-1918; The end: 1918; Anti-climax; Some authorities; Index.

Reviewed by Major F. During, Infantry

From the time he succeeded his father at the age of 29 until he abandoned his royal and imperial heritage thirty years later the Hohenzollern who had been atavistically christened Friedrich Wilhelm Viktor Albert was the dismay of psychologists, the puzzle of publicists, the cynosure of an amused or serious, but ever-expanding, world public.

The periodic object of praise or blame, of laudation or contumely or of jest, finally of abuse and hatred, he was never the object of indifference. All contributed to make him the most glamorous, the most intriguing actor on the stage of the world.

Germany, over which Wilhelm began to reign in 1888, was very different from the Germany he staked and lost in 1914, and the contrasts of empire status cannot possibly be accounted for if we are to accept the apocryphal Kaiser, whom Mr. Chamier ironically designates as "Fabulous Monster," and puts a red unicorn rampant on the jacket of his book to make his irony more pointed.

His is the first sincere, dispassionate endeavor we have seen which rationally accounts for Wilhelm and the mighty empire of which he was the artificer and which was to dissolve before his gaze—even the dissolution is rationally accounted for, although not in the accepted way.

The author avails himself of no preface, either apologetic or interpretative, to prepare the reader for what is to come. An unlovely and tortured childhood is visualized at once, and from it and a harshly disciplined youth, from a manhood alternately swerved by sentiment and reason, shaped successively by good or evil forces, from the deluded leader of armies, and finally from the alert, but resigned, exile at Amerongen and Doorn, a new Wilhelm emerges bearing only a slight resemblance to the conventional figure. Little new material contributes to the making. It is mainly a matter of logical deductions from the old, of a meticulous examination of relation between cause and effect, of reasonable readjustments.

For perfectly obvious reasons one of these takes place near the beginning, so that the impression made may prevail throughout:

The happy, hard-working, clean-living young man who could ride his critics to grief and walk them to a standstill, who was never seen tired, who had gone almost teetotal to discourage hard drinking in mess, who scorned even the dentist's terrors—"the ladies like an anaesthetic, no doubt"—who found his pleasures in sport and tennis, the sea and the forest, and had produced seven sound children in lawful wedlock, was not every one's idea of a congenital cripple with tendencies to insanity.

The pathological diagnosis thus demolished is not allowed to intrude later on, least of all when it comes to the "dropping of the pilot," the von Bülow puzzle, the so-called interview in *The Daily Telegraph*, the World War, the abdication.

We learn from the author that Wilhelm's efforts for peace caused him to lose prestige he was never to regain. This, of course, was not realized

by President Wilson in November, 1918, when he informed Prince Max, Germany's last imperial Chancellor, that the Allies could not treat for peace with the Kaiserlich administration. Concerning the action that Prince Max then took, Wilhelm later sadly observed: "*Max von Baden ist hinter mich gegangen* [Max of Baden didn't act square with me]." With this sole exception Wilhelm had no bitter word for anyone, and, according to Mr. Chamier:

Had Wilhelm survived as ruler even of a ruined Germany into the post-war world, his whole past history guaranteed that he would have thrown himself heartily into the new ideas of world union, which he had himself conceived. Crying over spilt milk was no Hohenzollern trait; nor were by-gones, in that robust philosophy, anything but by-gones.

Although *Fabulous Monster* may not vindicate Wilhelm in many minds, it will, at least, cause a modification of the apocryphal Kaiser in some and furnish excellent entertainment for all. [*New York Times Book Review*, 19 August, 1934]

Eimannsberger, General Ludwig Ritter von.—**Der Kampfwagen-krieg.** [Tank warfare.] München, 1934—216 pages....M 405-J1-A.43

CONTENTS: Quellen; Einleitung; Tankschlachten des grossen Krieges; Bilanz 1918; Überprüfung der Bilanz; Entwicklung der Tankwaffe nach dem Kriege; Abwehr; Angriff; Zusammenfassung.

Reviewed by Major S.J. Heidner, Infantry

This book is a serious and thorough military study of the role of the tank, and of mechanization in general, in modern warfare. General Eimannsberger starts his book with a careful analysis of the part played by tanks in the World War; then he considers the latest developments in tanks and in antitank defense; based on these studies, he comes to conclusions as to how the tanks of a future army should be organized and employed; and, finally, he applies his ideas to the solution of a concrete problem.

The author believes that with the advent of the machine gun the defense became so powerful that it was difficult for an army to gain a decisive victory even over an inferior adversary. The stabilization of the battle fronts in the World War was, he states, the result of the defensive power of the machine gun. After the opposing lines became fixed, there was no way for either side to break through the opposing position except by a formidable massing of artillery. Such concentrations of artillery required weeks of preparation and stupendous quantities of matériel, and then could not give decisive results, for, as soon as the infantry had passed beyond the support of its artillery, it could again be stopped by a comparatively few machine guns. By the time that the attacking artillery could be moved forward, defending reserves could be moved into the threatened area. Cavalry proved useless for exploiting a breakthrough; the horse has even less chance than the infantryman to advance against machine-gun fire. The author believes that automatic weapons and the motor have ended the usefulness of cavalry. He says: "We old officers, who tenaciously cling to the horse and its romance, may regret this development, but those now responsible must not overlook this fact, for the army is not a sporting club." In addition to this inability of exploiting a breakthrough by the old methods, the author shows the difficulty of keeping secret the preparations for an attack with massed artillery. If the enemy learns of the preparations, he can withdraw the bulk of his troops from the front lines, as the French did before the last great German offensive in 1918, and then the formidable artillery concentration falls in a void and accomplishes nothing. He concludes that other methods than the massed artillery attack must be found if the attacking force wants to gain a decision.

The tank, the author believes, is the weapon that has broken this stalemate brought about by the machine gun. With tanks, armies can regain their mobility, and bring on decisive actions. Since tanks can be rapidly concentrated, surprise attacks will be possible. Then after over-running the hostile position by surprise, tanks, supported by mechanized units, can act against the hostile flanks and rear and fully exploit the initial success. He shows that at Cambrai in November, 1917, at Soissons in July, 1918, and east of Amiens in August, 1918, the allied tank attacks broke completely through the German positions. That these successes were not fully exploited, was due to lack of foresight; the full possibilities of the tank were not utilized.

Considerable space in the book is devoted to the defense against tanks. The author believes that infantry can not be expected to hold a position against tanks on the mere assurance that tanks look more dangerous than they are. He thinks that infantry must have assigned to it organically a weapon that will stop tanks. He thinks that to be effective, the antitank weapon must fire an explosive shell; with a solid bullet one might score a number of hits and yet not disable the tank or crew. This and other considerations lead him to the conclusion that a 37-mm. automatic cannon is the ideal antitank weapon. He advocates placing machine guns in the three rifle companies of the battalion, and converting the present machine-gun company into an infantry cannon company armed with six of these cannons, and that in addition there be assigned to each infantry division an infantry cannon regiment. Besides the infantry cannon, the defense must have mobile antitank reserves to act offensively against hostile tanks which may penetrate the defender's position. Such mobile reserves will consist of tanks and mechanized units.

The author believes that the bulk of future armies will still be infantry divisions, organized much like at present except for the addition of the infantry cannon mentioned above. There will be tank brigades for reinforcing the infantry divisions that are going to attack. Finally there will be tank divisions and mechanized divisions to be used for exploiting the successes gained by the front-line infantry divisions.

The book ends with the study of a concrete case. The author takes the situation as it existed on the Western Front on 8 August, 1918, but adds to both armies almost unlimited quantities of tanks, mechanized units, and antitank cannon. He develops the plan for the attack that the Western (Allied) army should make in order to gain a decisive victory.

The entire book is well written, and the conclusions of the author are supported by logical reasoning. The critical analysis of the tank battles of the World War is particularly well done and seems free from national bias. The sources from which the author drew his facts are quoted. It is regrettable that most of the book is devoted to fitting tanks and mechanization into a situation such as existed toward the end of the World War when two colossal armies were facing each other in a stabilized situation and when all the economic force of the adversaries was used to produce war materials. The book would claim a wider interest if the author had given some space to armies in mobile situations with tanks in limited numbers, such as one might find at the beginning of another war.

Freeman, Douglas Southall.—**R.E. Lee. A biography.** Volumes I and II. 1934—621, 647 pages.....M 9737-E4-C.75-B92 (LE)

Reviewed by Colonel Troup Miller, Cavalry

Many biographies have been written about General Robert E. Lee, but none of them in the past have been complete nor have any of them been entirely satisfactory. Of the previous innumerable lives of Lee not one brings together all the existing material and many treat a particular characteristic of his life, such as the soldier, the christian, the American, the educator. Among military biographies Henderson's *Jackson* and Lytle's *Forrest* are the only ones which may be classed as truly definitive.

The greater the man the longer it takes to present a true picture of him in all of its colors.

It looks at last as if the final and definitive biography of Lee had been written. One immediately becomes interested therefore in the author who has been able to accomplish what so many other writers throughout the years have been unable to approach. Dr. Freeman is the editor of *The Richmond News Leader* and has long been distinguished in Southern journalism. He has been prominently identified with various movements and associations for furthering Southern historical study and for perpetuating Southern tradition, as Secretary of the Confederate Memorial Institute, a member of the advisory board of the Confederate Museum, Vice-President of the Battlefield Parks Association, and President of the Southern Historical Society. He is the author of various studies in Confederate Military history, and editor of *A Calendar of Confederate Papers* and *Lee's Dispatches*. His study and experience has eminently fitted him for the great task which he has undertaken in producing this admirable work on Lee. To this monumental biography of the great Southern leader, which has been truly a labor of love of Robert E. Lee and the South, he has devoted twenty years of closest application and thousands of dollars in painstaking investigation and laborious research.

Dr. Freeman, in his exhaustive study of the great Virginian, has not attempted to change the historical Lee but in the four volumes which he has prepared, he has endeavored to tell the life story of the peerless Southern leader in more complete detail than ever before related and to give us the benefit of much valuable source material which has never before been explored. He lists in his foreword a number of features in the life of Lee, of which little has been published such, among other subjects, as the development of his strategy in the Civil War and he expresses the hope that the professional soldier who will follow, step by step, the unfolding of Lee's strategic plans as portrayed in these volumes, will learn much from the leader of the Army of Northern Virginia.

Volumes I and II carry the career of the great Southern soldier from his early ancestry to the "high noon of the Confederacy" at Chancellorsville, where he lost his "right arm" in the untimely death of Jackson.

Dr. Freeman starts his narrative by giving us a detailed account of Lee's ancestors and some interesting and illuminating events of his boyhood. By consulting the records of the United States Military Academy and the Bureau of Engineers, he has succeeded in throwing much light upon Lee's career at West Point as a cadet, his earlier service in the army, and later as Superintendent of the Military Academy. He sets forth Lee's standing in his class each half year and describes, in a very interesting way, Lee's efforts to overtake the man who graduated number one in his class, finally himself graduating number two. He proves to us too, by the records of the library at West Point, that young Lee was greatly interested in Napoleon's campaigns and devoted considerable study to some of them.

Nevertheless, the author does not hesitate to claim that Lee, the soldier, graduated in the school of General Scott. When he joined Scott's staff "he stepped over night, as it were, from the execution of small operations to the planning of great enterprises and, although he did not know it, he had started up the ladder of fame."

To Lee, as to practically all of his future opponents, the Mexican Campaign was his sole experience of regular warfare before 1861. But to Lee the experience was of exceptional value, for Scott, the most scientific soldier of his day in America, included him, then a captain of engineers, in his "little cabinet," a body of four, two seniors and two juniors, with whom he would discuss his strategical problems.

From the point of view of the military reader, Lee's service in Mexico is most interesting as it was the beginning of his practical training in the field as a soldier. In his later campaigns in the Civil War he seemed to possess an uncanny eye for terrain and Dr. Freeman tells us that the les-

sons which he learned in Mexico were "the basis of virtually all he attempted to do in Virginia fifteen years later."

Scott rarely ever made a decision without first waiting for Lee's personal reconnaissance of the terrain and the hostile position, and his services were invaluable both day and night in gaining that information which was so vital to the commander. He had a remarkable sense of direction, too, which served him well in many stirring situations between Vera Cruz and Mexico City.

Dr. Freeman points out seven great lessons learned by Lee in Mexico which were to be the very foundation of his action in his many campaigns in the great struggle between the North and the South. *First*, and perhaps the greatest, was audacity, "audacity, even to the verge of seeming overconfidence, was the guiding principle of the strategy Lee employed as the leader of a desperate cause." The other lessons were:

Second.—Scott conceived it to be the function of the commanding general to devise the strategic plan, to bring the troops on the field at the proper time and place and then to leave tactics and combat to the division commanders—that it was not the function of the commanding general to fight the battle in detail. Lee accepted this idea at first as it appeared to work satisfactorily in Mexico, and he adopted it in his first campaign in command of the army of Northern Virginia, but abandoned it in his later campaigns.

Third.—"Working with a trained staff, Lee saw its value in the development of a strategic plan. Scott was very careful on this score." He surrounded himself with men who had been well grounded in discipline, promptness, and accurate observation. "He did not exaggerate when he said publicly in Mexico City that he could not have succeeded in his campaign had it not been for West Point." Lee kept this ideal of a trained staff and sought at a later time to build up such an organization, but he had become so accustomed to efficient staff work in the regular army that when he first took command in Virginia, in the great national tragedy, he did not realize how vast was the difference between trained and untrained staff officers.

Fourth.—The relation of careful reconnaissance to sound strategy. "Lee had shown special aptitude for this work, and he left Mexico convinced for all time that when battle is imminent a thorough study of the ground is the first duty of the commanding officer. Reconnaissance became second nature to him."

Fifth.—The strategic possibilities of flank movements taught Lee that, at little cost of life, positions of much strength could be rendered untenable. Lee never forgot this lesson. "Second Manassas was Cerro Gordo on a larger terrain; the march across the pedregal to San Antonio and the San Angel Road found a more famous counterpart in Jackson's movement to the rear of Hooker's army at Chancellorsville."

Sixth.—The relationship of communications to strategy. Lee "saw Scott at Puebla boldly abandon his line of supply from the sea and live off the country. It is quite possible that this experience was one reason why Lee was emboldened to expose his communications in the Maryland Campaign in 1862 and in the Pennsylvania Campaign in 1863".

Seventh.—An appreciation of the value of fortifications. Lee had had a hand in the proper location of many batteries and had every opportunity of observing the effect of their fire. He also laid out many fortifications and examined carefully those constructed by the Mexicans and may well have told himself that a competent defending force could have added much to Scott's difficulties by intelligent use of the light earthworks the Mexicans had constructed.

In addition to the foregoing lessons, the author reminds us of Lee's opportunity during his months with General Scott of studying human nature and gives a long list of interesting associations in Mexico with his future lieutenants and antagonists, stressing particularly his intimate and useful "working knowledge" of McClellan.

Dr. Freeman has much to say that is new of Lee's organization of the defenses of Virginia during the seven weeks when he was Commander-in-Chief of his State's military and naval forces; what seemed to him the greatest danger then was prompt action on the part of the Federal Navy. Called to defend Richmond a second time in March, 1862, as virtually Chief-of-the-Staff under Davis (who, however, never relaxed his constitutional powers as Commander-in-Chief) Lee initiated the "Valley" Campaign which frustrated McClellan's plan for the reduction of Richmond. The essential difference between Lee's and Johnston's (who commanded the Confederate forces in the field in Virginia) strategical views is clearly shown in this connection. Johnston sought to meet concentration with concentration, Lee to prevent concentration by maneuver. At first Lee's main object was to use the Valley troops to prevent Fredericksburg from falling into Federal hands. It was not until he recognized the Federal Government's reaction to Jackson's blow at Winchester that he detected the crack in the enemy's armour—namely, Lincoln's excessive nervousness for the safety of his capital. That discovery, once made, he quickly turned to account. The author establishes the fact that Lee would have reinforced Jackson for an invasion of Pennsylvania could he have persuaded Davis to withdraw the necessary forces from the Carolinas and Georgia.

The reader will be especially interested in the author's treatment of the controversial questions which appear in all biographies of Lee. He discusses the contentions of various other writers, weighs each authority critically, and then points out in a most convincing and impressive manner his own conclusions.

The second volume deals mainly with Lee's first five main campaigns after succeeding Johnston as commander of the Army of Northern Virginia, namely, The Seven Days Battles, the Second Battle of Manassas, the battle of Sharpsburg, the battle of Fredericksburg, and the battle of Chancellorsville.

In covering the Seven Days Battles, the author presents the best discussion of this most confusing campaign that this reviewer has ever read. He stresses Lee's strategy in this campaign and shows that Lee's conception of defending Richmond successfully was to assume the offensive. He shows in considerable detail the painstaking plans which Lee made for this, his first campaign, how he relied greatly on the principle of surprise, and how he employed the principle of the objective and the principle of mass. He points out that Lee's scheme of maneuver at the opening of the campaign was to occupy the enemy with a secondary attack on his front, to mass his forces on McClellan's exposed north flank, and with a turning movement on that flank to cut him off from his line of communications.

The reasons for Lee's failure to annihilate McClellan in the Peninsula are fully discussed; defective maps, bad roads, poor staff work, poor handling of the cavalry and artillery, lack of coordination and teamwork between the various divisions, lack of reconnaissance resulting in frontal attacks, deficient intelligence service, a lack of tactical genius on Lee's part, and too much trust placed in his subordinates combined with his consideration for their sensibilities are the causes assigned. The failure of several of his subordinates is given as one of the principal causes of not reaping a more complete victory—of these failures Jackson's seemed the greatest and most inexplicable. But in two lengthy appendices the author tells us that Jackson cannot be held responsible for his apparently dilatory movements on June 26-27, because the orders he received were open to misinterpretation and based upon faulty maps and that his inertia at White Oak Swamp on the 30th was probably due to physical exhaustion which paralyzed his will for action. He leaves the reader with the conviction that Jackson simply was not himself during these days which meant so much to the Confederacy and furthermore, after his brilliant campaign in the "Valley," had not yet learned to work in the great army team in which he played such a conspicuous part in later campaigns.

The author claims that Lee left the execution of his plans entirely in the hands of his various division commanders as he had seen Scott do successfully in Mexico, but suggests the thought that Lee learned much from his experience on the Peninsula and doubtless commenced to realize that better coordination and direction of the attack could be effected by the exercise of more control by the Commanding General. He was impressed too with the costliness of direct attacks in the Seven Days Battles as is evidenced by his later adoption of flank attacks and quick maneuvers to the enemy's rear. He abandoned converging columns and envelopment, or overlapping as it was known in those days.

In discussing the Second Battle of Manassas, Dr. Freeman raises a point of controversial interest. He produces weighty arguments to show that when Lee sent Jackson around Pope's flank in the Second Manassas Campaign, his object was not, as generally supposed, to bring on a battle before Pope could be reinforced by McClellan's army, but by maneuvering with his weaker force to force Pope to retreat and thus to recover territory upon which he could subsist his own army.

From Pope's captured dispatch book he concluded that McClellan's forces were moving to Pope's aid via Fredericksburg and not through Alexandria. His object therefore was to increase the distance between the two Federal armies, secure supplies upon which he could maintain his army until the reinforcements on their way from Richmond reached him, and then apparently to invade Pennsylvania. The author also makes it clear that Lee, with his weaker forces, had no intention of giving direct battle to Pope but that his one idea was to out-manuever him and defeat him.

An interesting item in the discussion of this campaign is related by the writer who states that on 29 August, when Lee and Longstreet were discussing the desirability of attacking Pope, Lee, though unconvinced, assented to the views of "Old Pete" who argued against attacking and "the seeds of much of the disaster at Gettysburg were sown in that instant—when Lee yielded to Longstreet and Longstreet discovered that he would yield."

Lee, the army commander, is vividly pictured on a personal reconnaissance at Second Manassas which greatly aided him in arriving at a decision.

The author stresses the improvement in Lee's operations at Second Manassas and claims that his success there was due to better staff work, better employment of his artillery and cavalry, improvement in his intelligence service, and to the fact that Lee placed responsibility in the hands of fewer men.

In taking up the Maryland Campaign, Dr. Freeman dwells at some length on the reasons for crossing the Potomac River and again brings Lee's strategy into the foreground. He tells us that Lee not only entered Maryland on a campaign of extensive maneuver in the face of superior forces for the purpose of subsisting his army and freeing Virginia of the enemy, but that he moved across the Potomac for political and sentimental reasons and, above all else, for the purpose of proceeding on to Harrisburg and destroying the Pennsylvania railway bridge over the Susquehanna River at that point, thus severing communication between the East and West and forcing communication to the slow and circuitous route by the Great Lakes.

The author believes that Lee was justified in separating his forces for the protection of his line of communications at Harper's Ferry and points out that Lee's knowledge of McClellan's extreme caution and inaction warranted the risks which he took. He says that it was not that Lee was reckless but that McClellan was exceedingly lucky in finding the "lost order" and being informed of Lee's dispositions and intentions; that that fact alone animated McClellan and put new life into an army which otherwise would have approached Lee with its usual caution.

In commenting on Sharpsburg we are reminded that that was the first great defensive battle that Lee had been forced to fight and that it was here that Lee learned for the first time that he could count on the defensive qualities of his valiant army. We are also told that Sharpsburg was the first major battle that Lee had completely directed and that he learned here that the larger tactical direction of the action was a duty of the commanding general. Lee seems to have lost faith in one of the lessons he learned in Mexico under Scott. He was learning more about commanding an army when confronted by a worthy opponent.

The author defends Lee for not retreating across the Potomac on the night of September 17th after the battle on the ground that Lee needed time to secure the booty at Harpers Ferry, to evacuate his wounded, and to collect his stragglers.

In this campaign we are given a vivid picture of the physical condition of the Army of Northern Virginia and we marvel that it could have accomplished what it did without shoes, food, or proper clothing. Lee himself said to Alexander: "My army is ruined by straggling."

After the battle of Sharpsburg we again find that Lee's constant thought was for the safety of the Confederate capital and his almost daily correspondence with Mr. Davis indicated that his plans would be formed with that idea in mind. He was keeping his eye on the south side of the James River while planning to delay McClellan on the frontier as long as possible in order that he might form a junction with his principal ally—winter. He therefore made his plans to block all approaches to Richmond from the north.

As we return to Virginia and find the Army of Northern Virginia preparing for the battle of Fredericksburg we enter another interesting phase of this fascinating book. Burnside had succeeded McClellan, and Dr. Freeman tells us that when Lee heard about it he said to Longstreet: "I am sorry to hear that, for we always understood each other so well. I fear that they may continue to make these changes till they find someone whom I don't understand."

Again we are impressed with Lee's personal reconnaissance along the defensive lines at Fredericksburg and the control which he now exercises over his army which has been reorganized into two corps under Jackson and Longstreet. We find him with his command post established on Lee's Hill and with a new confidence in his army which had been refitted, rested, and recruited and is now securely entrenched on the heights south of Fredericksburg.

Another great defensive battle was fought by Lee but he was disappointed over the result, as he had not been able to strike a decisive blow or to gain a foot of ground, and he realized that the contest would have to be renewed on another field. The Army of Northern Virginia was still confident of victory in the field but fearful of economic disaster behind the lines.

Finally we reach the field at Chancellorsville where Hooker has succeeded to the command of the Army of the Potomac and advances through the wilderness south of the Rappahannock. Here the author presents another special situation to us in all of its details, except as to information of the enemy, and Lee is faced with another important decision.

The most interesting feature of this campaign from the Confederate viewpoint is Jackson's wide envelopment of the hostile right flank which was discovered "in the air" and the author's discussion of it. The evidence in support of Lee's claim as against Jackson's to the credit for devising the flank march at Chancellorsville is stated convincingly. It was Lee who initiated the proposal; Jackson chose the particular route and suggested that he should take his whole corps with him.

Dr. Freeman gives in detail the conversation which took place between Lee and Jackson on this subject just before Jackson's advance. He reports Lee as saying to Jackson after Stuart had reported the exposed enemy flank: "How," he asked half to himself, "can we get at these people," to

which Jackson answered in substance that it was for Lee to say and that he would endeavor to do whatever Lee directed. Lee then studied his map and pointed out to Jackson the general direction of the movement around the Federals' right flank and to their rear, explaining at the same time his plan of attack for the army as a whole. Jackson at once acquiesced.

The author has this to say of the foregoing incident: "Taking the evidence as a whole it is difficult to see how the controversy could have lasted so long or could have confused so many students of the campaign. The facts are unmistakable: Lee originated the plan to turn Hooker's flank and to get in his rear; Jackson elaborated it by proposing to use his entire corps, and then executed the plan with assured genius. Jackson after advancing his own proposals would execute Lee's orders as readily as if they were his own."

Dr. Freeman relates that as Lee watched Jackson ride away with his corps it must have been with confidence, with personal affection, and with admiration. "Such an executive officer," he said not many days thereafter, "the sun never shone on. I have but to show him my design, and I know that if it can be done, it will be done. No need for me to send or watch him. Straight as the needle to the pole he advanced to the execution of my purpose."

We are told that the battle of Chancellorsville presented another great opportunity for Lee to take the initiative with his weaker forces and to roll up the enemy's rear by his superior maneuvering ability.

Lee did not accompany the corps which was to make his decisive effort but remained behind in a central position and with his staff personally directed the operations of Anderson's and McLaw's divisions, which had been detached when Longstreet's corps was sent to the James. Lee's conduct of this battle was brilliant and showed a much more thorough comprehension of the duties of an army commander during an operation than he had yet displayed. He was forced to separate his forces, but he planned for surprise in Jackson's attack and hoped to throw Hooker back across the Rappahannock before he could damage Lee elsewhere.

The second volume closes with the death of Jackson at Chancellorsville, all the circumstances of which are vividly depicted with the distressing and crushing effects it had upon the great leader of the Confederate forces.

Dr. Freeman justly claims that Lee had made great strides in the art of generalship. His later campaigns had been a vast improvement upon his first, and at Sharpsburg and Chancellorsville he had displayed real tactical skill. But he had already disclosed at Second Manassas and on other occasions a dangerous weakness, an excessive amiability which prevented him from overriding recalcitrant subordinates. With Jackson gone and the ever-growing fear that economic attrition might ruin his victorious army, the prospect was not altogether a cheerful one. It might well be doubted whether he could last out another winter. How Lee threw for high stakes and lost at Gettysburg but held on for two more winters will be told in the concluding volumes.

The author has employed many attractive and unusual features throughout the book. He has adopted a style which has just enough of the dramatic to hold the expectant attention of the reader and make him eager to turn the following pages. He has avoided the use of long quotations from Lee's writing, so prevalent in other works, but instead has attempted to weave into the narrative those brief sentences in which, with characteristic directness, General Lee epitomized his opinions. Footnotes are used extensively and, together with a number of excellent appendices, serve as the evidence upon which his facts are founded.

The military reader will find great satisfaction in the accurate military terminology used throughout the book and will take a special delight in the many little sketches which accompany the narrative and aid so materially in its proper understanding. The author's constant reference to the "general staff" both in Mexico and in the American campaigns

when, in fact, it was apparent that he meant the "special staff," as we now know it, is the only criticism which can be offered on this otherwise highly accurate and meticulous use of military expressions.

The great novelty of this new biography and the feature which should have an especial appeal to the student of military history is the method employed of presenting the military campaigns. The reader is living constantly with Lee at Confederate headquarters or on reconnaissance and is in possession of only such knowledge regarding the strength, disposition, movements, and plans of the enemy as Lee had at the particular moment, but no more. In other words, the battles develop before us as battles do to a general who is fighting one with all their momentary chances. The air is full of rumors and excellent schemes go astray because of unknown factors. The "fog of war" is constantly over the field, not swept away by after knowledge. The reader is confronted with the same problem which Lee faced.

Allen Tate, the author of *Stonewall Jackson, the Good Soldier*, in his review of this admirable biography, has the following to say about the atmosphere of the battlefield: "Dr Freeman vigorously conducts the narrative in the original 'fog of war' in which Lee and his lieutenants planned their operations. The method has distinct advantages, and I know of no other military biography in which it is used. It heightens the suspense of the narrative and it throws into sharp relief the genius of Lee—we know exactly what Lee knew at a given moment and no more. But it requires, for full understanding, a somewhat detailed knowledge of the Virginia Campaigns. The reader must have the after-knowledge in order to follow the action, even though the protagonist is ignorant of his own position and even though the narratorial fiction of our own ignorance is a useful device for emphasizing Lee's difficulties. For this reason the 'fog of war' method will probably keep the new life of Lee from being a popular book."

Dr. Freeman may truly be said to be the author of the most comprehensive life of Lee yet written. Lee the Christian gentleman, as well as Lee the soldier, has never been realized so completely or so vividly as in the pages of this work. It will prove an invaluable book for students of strategy and military history. It is a superb achievement.

Gibson, George Rutledge.—**Journal of a soldier under Kearny and Doniphan, 1846-1847.** 1935—371 pages.....M 97362-J3-E

CONTENTS: Preface; Introduction; Author's Foreword; Across the plains to Bent's Fort; The occupation of New Mexico; Encamped in Santa Fé; The march to El Paso del Norte; The Conquest of Chihuahua; Appendix.

Reviewed by Major F.L. Hoskins, C.A.C.

This is an interesting account of the expedition sent out, under Colonel Kearny, from Fort Leavenworth in 1846 to secure Santa Fé and New Mexico. The author was a member of a volunteer infantry company organized at Weston.

While there was little fighting, the graphic account of the marching is most interesting to a student of military affairs. The march from Fort Leavenworth to Santa Fé, a distance of approximately 925 miles, was made in 47 days. Daily marches of more than 30 miles were not unusual, and marches of more than 20 miles exceeded in frequency those of lesser distance. The author fails to describe the individual equipment carried by these foot troops, but it is safe to assume that their equipment was scanty. One is lead to wonder how the present generation would compare in marching ability with those frontiersmen of 90 years ago.

Guedalla, Philip.—**The Hundred Days.** 1934—176 pages....M 94405-J6

Reviewed by First Lieutenant Joseph I. Greene, Infantry

Every man is free to interpret history as he chooses. But in spite of the increasing respect for actual fact that is evident in modern his-

torical writing, the interpretation all too often obscures the history. At placing a maximum of both, however, between the covers of a single readable book, Philip Guedalla is certainly one of the greatest living masters. Nevertheless, even his interpretation—and especially in the present volume—is not always closed to question.

From the military viewpoint the chief interest of *The Hundred Days* lies in Mr. Guedalla's documented statement that the direction and objective (Brussels) of the Waterloo campaign were preconceived, and that Napoleon had discussed and determined upon the liberation of Belgium months before his escape from Elba. The author shows clearly enough, however, in spite of the stress he places upon this first point, that the Emperor had to fight *somewhere* between the Alps and the Sea. And from Mr. Guedalla's—or any other writer's—account, it is apparent that the French army advanced directly toward the Allied armies. Thus it seems more than probable that Wellington was fully as much of a magnet to him as the city of Brussels.

In a "military note" at the end of his book, the author also discounts the old ideas in still another fashion. Waterloo, he insists, was not so much lost through French mistakes as it was won by Wellington's taking quick advantage of those mistakes. Ney's premature employment of the cavalry, Grouchy's incorrect and optimistic intelligence regarding the direction of Blücher's retreat after Quatre Bras—neither of these, indicates Mr. Guedalla, were as important as the fact that the Duke of Wellington lost no time in acting upon them. These items of special pleading are drawn much too fine indeed.

But on the whole, *The Hundred Days* is a brilliant, if somewhat partial, account of Napoleon's last days of power. His great ability actually suffers little from the pricks of Mr. Guedalla's deft pen. It is a suitable matter for comment in conclusion that any publisher should issue a volume on such a subject, without a single map.

Kiritzesco, Constantin.—**La Roumanie dans la guerre mondiale (1916-1919).** [Rumania in the World War (1916-1919).] Paris, 1934—496 pages.....M 9403-E4-D.498

CONTENTS: Preface; Les origines de l'intervention Roumaine dans la guerre mondiale; La période de la neutralité et la préparation de la guerre Roumaine; La campagne de l'année 1916; Le redressement Roumain; La campagne de l'année 1917; Liquidation de l'alliance Russo-Roumaine et union de la Bessarabie à la Mère-Patrie; La Roumanie sous la botte allemande; Délivrance de la Roumanie et union de la Bukovine et de la Transylvanie avec la Mère-Patrie; La campagne contre la Hongrie; La paix.

Reviewed by Major F. During, Infantry

This book tells the story of Rumania's part in the War. The chapters on political history throw a light on the various aspects of Eastern diplomacy, as seen from Rumania's point of view. The causes of antagonism between Rumania and Hungary and Rumania and Russia are emphasized. In dealing with military events the author traces the movements of armies, divisions, and regiments. He shows impartially the disastrous consequences of the Russian betrayal and the lessons to be drawn from defects in command and organization.

Mr. André Tardieu, Ex-Premier of France, has written the Preface and concludes it with the following sentence:

"La Roumanie, comme tant d'autres peuples, a scellé dans l'épreuve sa destinée. L'histoire de cette épreuve, faite de la trahison des uns et de l'erreur des autres, devait être écrite. Voilà qui est fait,—et de main de maître." [Rumania, like so many other nations, proved her destiny in the time of testing. The story of that testing was one that needed telling. This has been done—and by the hand of a master.]

Liddell Hart, Captain B.H.—**A history of the World War 1914-1918.**
 London, 1934—635 pages..... M 9403-E4-D.42-A

CONTENTS: Preface; The origins of the War; The opposing forces; The rival war plans; 1914—the clinch; 1915—the deadlock; 1916—the 'dog-fall'; 1917—the strain; 1918—the break; Epilogue; Bibliography; Index.

Reviewed by First Lieutenant Joseph I. Greene, Infantry

Here, in a British edition—and it is to be hoped that the volume will soon be available in the United States—we have a revision and enlargement of Captain Liddell Hart's original work, *The Real War, 1914-1918*. In the new issue he has more to say than before regarding the opposing forces and their plans. He has added chapters on Lemberg and the First Battle of Ypres. The German advance into France is more fully described, as are the 1915 Austro-German offensive, the western spring campaign of 1917, and the Allied discussions that were followed by the great spring drive of the Germans in 1918. There is also a new chapter on the war in the air; and many battles, including Verdun, the Somme, and Passchendaele, are now covered more completely.

Whatever the student may think of Captain Liddell Hart's independent and frequently heterodox outlook on warfare, ancient and modern, he must agree that Captain Liddell Hart has only the bias of an open mind—if that, indeed, is a bias at all. Better than any other military critic of the present day, he pierces with infra-red perception the fog of war that hovers not only over the battlefield but over the minds of men long after, and forms in the end, the misty substance of which legends make themselves. Certainly the author, in this book and in his others, at the very least weighs all the evidence, and then announces his honest reading of the scales.

It is seldom, too, that we find in combination with an unprejudiced critical intellect, the ability to write readable and vigorous prose. Others have told and are telling what they conceive to be the true history of wars. But all too often their words are academic, cautious, lacking in force. A big subject needs good writing to make it plain; for all big subjects are involved, and a faint skill with words is no adequate tool for handling them.

In addition to much praise of Captain Liddell Hart's ability to write, the point has also been taken that he has one real World War obsession—the inefficiency of the high command; and that the mere fact of rank and prestige is enough to set him going at full critical steam. It is said that he enjoys knocking down ears; and the bigger the ears, the better. A careful reading of *A History of the World War*, however, belies such statements. For it contains no criticism of a high commander without substantial supporting data. There is no hint of malice or glee, but only the straightforward phrases of a man who thinks his weighed and considered opinion is correct. Indeed, he has at least two "heroes," Gallieni and Allenby; and he accords praise not at all infrequently to Kitchener, Hamilton, the Hindenburg-Ludendorff combination, Lawrence, Rawlinson, and many another.

On the whole, this one volume history must be looked upon as a late and accurate account of the War, conveniently arranged, well-indexed, and with an unusually complete bibliography of main sources. For these reasons, if for no others, it will be a much-used book once it becomes part of any officer's library.

de Ligny, Colonel Hurault.—**La Division du Maroc aux Marais de Saint-Gond (5-10 septembre 1914).** [The Moroccan Division to Marais de Saint-Gond (5-10 September, 1914).] Paris, 1933—105 pages..... M 9403-H6-C.44-G3-C(M)C

CONTENTS: Préface; Avant-propos; Constitution de la division; Journée du 5 septembre; Journée du 6 septembre; Journée du 7 septembre. Ordre de la division; Journée du 8 septembre. Ordre de la division; Journée du 9 septembre; Journée du 10 septembre. Commencement de la poursuite; Conclusion; Annexes.

Reviewed by First Lieutenant Joseph I. Greene, Infantry

"This book is the work of a soldier," says General Weygand in his preface. "For this reason, Colonel de Ligny's account is a document of great value, and makes the reader experience the actual occurrences of those great days.

"But the author does not appeal to the memory alone. He has handled his subject as a historian, searching official sources and questioning veterans of the fight . . .

"When, upon closing the book, the reader thinks awhile of what he has read, he may be tempted to say: 'Well! I've heard enough about Mondement in the past to think it amounted to something. Was that all there was to it?' Yes. But in that name, become so glorious and so fine to hear, is summed up the whole of the stubborn and decisive resistance of the Ninth Army.

"If that army had given way before the repeated blows of the armies of von Bulow and von Hausen, the success of the plans of General Joffre would have been irremediably compromised. And if the Moroccan Division had not held the narrow line along the south borders of the Saint-Gond Marsh, the whole army would have fallen back, forced to withdraw across the Champenoise plain by the turning of its flank. . . .

"These pages of history relate frequent errors and misjudgments—late, or poorly executed orders, units losing direction, units badly confused, insufficient supplies. These are true. But we find here another thing, thanks to which the battle was won, in spite of mistakes and regardless of an insufficient armament. And that was the admirable unanimity of will that, during every moment of the battle, permeated every rank . . ."

These words of General Weygand are practically the only ones in the book that are in the nature of comment. Colonel de Ligny (a battalion commander in the battle) confines himself throughout his pages to an hour by hour account of what every battalion and every battery did. The movements and actions of the units are described with clarity, and even the ten accompanying maps are easy to read. Although it contributes little to the history of the War in its broader aspect, Colonel de Ligny's volume would be of considerable value, in full translation, to the student of battalion, regiment, and brigade tactics.

There are, of course, two ways of looking at the battles of the Saint-Gond marshes—the French way, and in the quiet light of history. To the French, Mondement was a victory, and doubtless always will be. The troops fought tooth and nail for nearly a week, and the enemy fell back, if not vanquished, then apparently without further hope of advancing. But actually, as Colonel de Ligny's account inevitably shows, following the first hour of contact, the French were forced back inch by inch to the heights beyond the marshes by the steady weight of the German corps. The battle was almost entirely defensive on the part of the French, and—without disparagement of the certainly tenacious fighting of the defenders—, by no means as important as it seemed at the time. For the main German effort was far to the north of the marshes of Saint-Gond.

O'Conroy, T.—**The menace of Japan.** 1934—294 pages.....M 952

CONTENTS: To introduce the author; A fragment of the history of Japan; Japanese mentality; The foreigner in Japan; The people and the Constitution; The soul of Japan; Buddhism and Christianity; Education; Women of Japan; Corruption and cruelty; The post-restoration growth of patriotism; Manchurian mélange; The real power in Japan; The lull before the storm; J'Accuse!; Indices.

Reviewed by Major P.C. Bullard, Corps of Engineers

In the present unrest of nations, the book of Professor O'Conroy is particularly timely, to the point, and valuable. Having lived in most of the countries of the world, and having taught in Denmark, Russia, and Turkey, he finally went to Japan, married into an aristocratic Japanese family and lived there 15 years, teaching at Keio University, the Imperial

Naval Staff College. He writes with the authority obtained, not only by long years of residence in Japan, but by a closer contact with Japanese thought, that few if any other foreign residents could be expected to have, for he was not only thrown with the Japanese, but he made an especial effort to seek out all classes.

"To begin to understand the Japanese mentality and to penetrate his mind it is absolutely essential to grasp to its uttermost significance this fact: the Japanese are convinced, they are even more than convinced, they *know* that they are descended from the Gods; and further, they *know* that they are the only race on earth that can make this claim. From this it follows naturally that a member of any other race in the world is a 'Barbarian.' This faith in their divine right has given them a tremendous, almost unbelievable conceit in themselves. It obtrudes upon every phase in their lives; it has given each individual a quiet, smug, self-satisfaction of mind, and in their books and newspapers has reached a point that has become menacing." The author shows that that attitude expresses itself in a form of combined racial, political, and religious belief called "Shinto." "Without Shinto it is impossible to even understand the Japanese."

"I found the men of Japan ruthless, cruel, lustful and treacherous. I found them corrupt and bestial. . . . A university professor asserts: 'Japan is unsurpassed, because of the absolute justice prevailing in it.' This, of a kind that is more corrupt than any other country in the five continents.

"The word of Japan is worthless. As her men are corrupt and vicious, so is the country. She has always honored her bargains only so long as it has suited her to do so, and this will always be so."

The author finds that the remarkable development of Japan in recent decades has been due to the adoption of occidental ideas, for nothing of originality is found in the mentality of the Japanese.

"I gradually became aware of some power behind the country that did not emanate from the Diet or the Emperor. . . . The people, as we understand the word, do not exist in Japan; they are completely over-ridden by the departmental staffs of the Government, and by the secret societies in conjunction with the police. . . . The Staffs are the real power in Japan. I will go further and say that shortly they will assume that power openly, and the nation will be with them. . . . Cabinet Ministers will act as the mouthpieces of the Staffs. Fear of assassination will keep them moving in the channels that the Staffs desire. They are, and will be, mere puppets.

"Two years or so ago, Osaka Mainichi, *The Times* of Japan, came out with: 'Japan should subjugate the nations of the East and conquer the world at the point of the bayonet.' This last sentence is the essence of thought of the young Japan of today. . . . The dream of Eastern subjugation has grown into a colossal proposition of conquering the world.

The idea is vast; first, Manchukuo, next China, India, Australia including New Zealand, and Russia. That is the campaign of the Staffs. It will come sooner than it is expected, if, indeed, it is expected. Japan will not at once declare war, but she will slowly advance. Gradually she will assume control of China, and the latter will again ask for the help of the League, will suggest once more that they keep their word to her. It rests with the European Powers and America how far Japan will be allowed to go. . . .

"Though all the other Asiatic nations have surrendered to the white men, Japan alone has remained independent and gained a glorious position. The nation thus had a great mission to do something for the benefit of the rest of the Oriental peoples. What then is the mission with which Japan is charged by Heaven? It is the rescue of 800,000,000 Asiatics from white men's slavery. . . . Our national leaders are well aware of this mission. . . ."

"Japan is nearly ready . . . It will be no open warfare immediately. It will be a repetition of Manchuria. Already she has signed a treaty with China for a nominal peace. . . . Next she will be signing, openly and secretly, rights, concessions, special privileges, with different lords of the Chinese provinces . . . for the sole purpose of manufacturing some pretence for the resumption of hostilities when the time is ripe. . . . I accuse her of deliberately fermenting trouble in China, with the one view of conquest. . . . I accuse Japan of working at top speed towards a war. I say that her Staffs are prepared to sacrifice the whole nation. General Araki is calling for war, every word he utters has a bellicose, arrogant tone. In May he stated to the Diet: 'Woe to those who oppose our arms.' 'We declare to the world that we are a militaristic nation.' 'Kill without quarter.' . . . These are all from his book . . . published this year, or from his latest speeches. Araki is, today, the Power in Japan. I say that JAPAN WANTS WAR."

Pages, Emile.—**Campagne de misère. Sibirie 1919.** [A campaign of hardships. Siberia, 1919.] Paris, 1933—223 pages....M 9403-J.57

CONTENTS: Avertissement; Le royaume de l'aventure; Le lion de Bohême; L'Anabase; Le dictateur; Osk; Pierrot; La débâcle; Le chaos; L'offensive due printemps; L'équipe; Le train d'or; La bataille d'Irkoust; La fin du régent; La route de la mer.

Reviewed by First Lieutenant C.T. Lanham, Infantry

From the very inception of hostilities in 1914 the forces of dissolution in the Austro-Hungarian Empire made themselves evident. The small peoples crushed into subservience within the boundaries of this vast polyglot empire only awaited the propitious moment to renew their struggle for independence. In retrospect it appears that the Czechoslovakians were probably the most determined in pursuing their dream of an autonomous state. Czech legions appeared in practically every Allied army. However, since Russia and Austria-Hungary were at each other's throat, it was natural to find more of these fiery legions in the Army of the Czar than elsewhere.

When the inverted pyramid of Russia collapsed in 1917 there were more than a hundred thousand Czechoslovakians numbered in the Russian Armies. In the chaos that followed the Russian débâcle these scattered legions gradually drifted together. United in a single purpose, they swore that they would carry on the fight beside the Allies to the end that their country be recognized as an independent state and the "absolute master of its destinies." From their exalted devotion to a common cause and to each other these exiles in Russia came to be known as "Bradzés" (brothers).

With the fall of the Kerensky regime and the rise of Lenin, the Bradzés found themselves isolated in a terror-stricken country that had repudiated the Allied cause. From this point on their history is a melange of suffering, treachery, and incredible tenacity. Neither hunger nor Siberian winters nor the utter stupidity of the glory-seeking Koltchak broke the iron will of their purpose.

It is this wild Anabasis of the Bradzés running the frozen gauntlet of Siberia from the Ural Mountains to Vladivostok that M. Emile Pagés seeks to write. He, himself, participated in this campaign of suffering in the role of sergeant in command of a radio detachment of nine men sent out as part of the French Mission to Siberia in 1918.

It is obvious from the unevenness of the book, and indeed the relative confusion of it, that M. Pagés was not altogether au courant with what was going on about him. It could scarcely have been otherwise. Therefore, he has been forced to draw largely on contemporary sources to bring some light on the chaos that reigned in Siberia in 1918, 1919, and 1920.

Roughly his volume might be said to follow three themes: (1) the experiences of the radio detachment that he commanded; (2) a recapitulation of Admiral Koltchak's blundering efforts to establish a new state

extending from the Urals to the Pacific as related originally by General Rouquerol in *L'Aventure de l'Amiral Kolchak*; and (3) the moving account of the Bradzès and their struggle to reach the Pacific from the time the red flame of bolshevism rolled down the Urals and swept slowly eastward over the wild Siberian steppes.

Rule, E.J.—**Jacka's mob.** Australia, 1933—346 pages.....M 9403-E4-D.42-Z.94

CONTENTS: Foreword; Author's preface; So this is Anzac; "Dear Bill, ain't it a B—?"; Good-bye Gallipoli; Cairo; The line at Armentières; Raids; To Pozzières; On Pozzières ridge; Into it again; Our stunt; Out of hell; Etaples, and our first inning at Ypres; In the "Chain conveyor"; "From him that hath not"; A land of the dead; Bullecourt; School—and a Parisian interlude; At Messines; The rebaptism of No. 11 Platoon; Viv Garner goes out; Gapaard; Codford; The end of Harry Danman; Pillage; Before Hamel; Hamel, and the Americans; In a backwater; Real victories; The last chapter but one; Jacka's flag.

Reviewed by Major F. During, Infantry

Jacka's Mob is the name of an Australian unit which was commanded by Captain Jacka, V.C., M.C., and who served as a private, noncommissioned officer, and officer in this unit.

In this book we find the memoirs of this gallant front-line soldier. It is a vivid portrayal of the every-day life of an infantryman in the World War.

Soule, George.—**The Coming American Revolution.** 1934—314 pages.....323.2

CONTENTS: *Part I*—The Nature of Revolution: The present as history; The trial pattern; What revolution is not; Violence and revolution; Revolution is not sudden; The rôle of the mob; The Puritan Revolution; The first American Revolution; The French Revolution; The Russian Revolution; What revolution is. *Part II*—Changes Under the Surface: Machines and processes; People and their occupations; Business units and owners; The rigidity of debt; Other internal rigidities; The rigidities of foreign trade; The size of the community; The sum of the changes. *Part III*—The Crisis of the Thirties: The ebbing tide; The Hoover resistance; The second phase of Hoover planning; Fermentation; The New Deal is dealt; The New Deal is played. *Part IV*—The Coming Revolution: What kind of prediction? Planning for profits; Planning for the masses; Socialism, communism, or fascism?; Does the pattern fit? Selected bibliography; Index.

Reviewed by First Lieutenant J.I. Greene, Infantry

In the first seven-eighths of his book, Mr. Soule gives us one of the clearest and most readable accounts of what has happened to us during the past five years that has yet been written. In the beginning he clears away, by accurate historical analysis, a number of erroneous general conceptions of revolutions and how they come to pass. Then, in the long middle portion of the book, he comes down to our particular case, describing in fine, lucid prose the loss of balance between consumers' and capital goods that has put us where we are, as well as the resulting condition. Any reader who would know just what did occur could hardly find a better summary.

When Mr. Soule turns to the future in his last forty pages, he applies his opening analysis of revolution in general to our present status. And on this basis he gives it as his reasoned belief that we are on the road to a complete change of system from that of capitalism but that we are still some decades, perhaps, from the critical period of the change. He thinks it possible that we may weather one or possibly two more cycles of business, but that each time a depression occurs capitalism will emerge in a weaker state and with less confidence than before. In the end, if our revolution follows the English, the American, the French, the Russian, and the German revolutions—reaching revolution possibly through an interim of dictatorship, although that is somewhat unlikely—we shall first find ourselves in the hands of a moderate group of the new regime, which will be too weak to hold its power. Its downfall will be followed by the period of strife that follows in the wake of all major social changes,

and a final complete abandonment of "government by private money makers."

The reader should remember that Mr. Soule's book is not at all a piece of special pleading. In fact, he believes that the present Socialist and Communist parties in the United States will not pass beyond their present comparative weakness of organization, and will take no important part in the eventual shift from capitalism to some other form of social existence. And of the present administration, Mr. Soule believes that its chief contributions are first, the accomplishment of a step toward a period of impermanent and unreal prosperity in which the rich will again become much richer but the poor no better off, and, second,—and more important in the eventual light of history—the awakening of many millions to a questioning of things as they are. This examination of our economic system, began when millions who had never questioned anything before saw Wall Street come tumbling down and lost their jobs and their savings, and now continued in no small degree by those in authority seeking hard to find a way, is, Mr. Soule believes, the first important growth of an attitude of mind that will bring the big change in a few decades.

The fact that Mr. Soule bases his guess so carefully on history is what makes *The Coming American Revolution* a work that can hardly be overlooked by any military reader. Regardless of one's own viewpoint, or even one's own beliefs as to the future, such a book as this is too important a comment to neglect.

Thompson, J.M.—**Napoleon self-revealed.** 1934—383 pages..M 94405-N5

Reviewed by First Lieutenant C.T. Lanham, Infantry

And still the presses of the world grind out new volumes on the perennial Napoleon! A hundred years have not lessened the glamor of that incredible man, nor have fifty thousand volumes sated the public curiosity in his immortal adventure.

In this latest contribution to the Napoleonic legend, Mr. Thompson has allowed the great Emperor of the French to limn his own many-faceted character through the medium of his correspondence. When one considers that more than 41,000 documents from Napoleon's own hand were available, one can appreciate the tremendous task Mr. Thompson set himself in selecting three hundred letters that would adequately portray history's number one soldier.

The result of this winnowing is an interesting volume of three hundred and sixty-two pages. From the military point of view it has little to commend it other than the obvious values to be derived from a glimpse into the working processes of a great soldier's mind. The value of the book lies principally in its unimpeachable accuracy, and its interest in the almost breath-taking swiftness with which the reader is hurtled along that flaming course of destiny that flickered out at St. Helena.

Voysey, Lt.-Col. R.A.E.—**An outline of the principles of war.**

1934—369 pages.....M 501-C.42

CONTENTS: Preface; The principles of war; Concentration and economy of force; Surprise; Mobility; Offensive action; Co-operation; Security.

Reviewed by Major F. During, Infantry

Colonel Voysey has written an interesting book, in which the principles of war are illustrated by several well-chosen historical examples, drawn mostly from the American Civil War and the Franco-Prussian War of 1870, but Napoleon is not entirely neglected. The only modern instances chosen are Palestine, 1917 and 1918, and the cavalry action at Nery on 1 September, 1914.

Such reminders as "Staff officers are made, not born" and "Rules of war spell damnation, salvation lies in the correct application of principles" and others are found in the footnotes.

Book Reviews

Great stress is laid on the detrimental results of political interference with the actual conduct of war.

No maps are provided, but as the author states in his preface, there is no better method of fixing the topography of a campaign in one's mind than by drawing one's own maps, and in order to enable the reader to do so, the author has added after each historical example, the coordinates of places and natural features, to be used on ordinary commercial graph paper ruled with one-inch squares.

The book is of special value to the G-1 and G-3 Sections.

Section 7

LIBRARY BULLETIN

BOOKS ADDED TO THE LIBRARY SINCE DECEMBER, 1934

- Adams: **America's tragedy.** 1934 [M 973-C]
- Agriculture, Dept. of: **Yearbook of Agriculture, 1931, 1932, 1933.** [630.58]
- Air Annual of the British Empire, 1934-35.** 1934 [M 409-C.42]
- Bailla & Gazin: **Crossing streams in an open warfare situation.** (Translation from the French) 1933 [M 503-M1]
- Bansee: **Germany's new military doctrine.** (Translation from the French) 1934 [M 003-A]
- Bathe: **Frankreichs schwerste Stunde. Die Meuterie der Armee, 1917.** [France's most serious hour. The mutiny of the army.] 1933 [M 9403-E4-D.44-A]
- Beard:
- The idea of national interest; an analytical study in American foreign policy.** 1934 [327.73(A)]
- The Open Door at Home.** (Sequel to: "The Idea of National Interest.") 1934 [327.73-(A)]
- Belmont: **Lettres d'un Officier de Chasseurs Alpins, (2 aout 1914-28 decembre 1915).** [Letters of an officer of the Alpine Chasseurs, 2 August, 1914-28 December, 1915.] 1916 [M 9403-B4.44]
- de Bernadotte: **Les Chemineaux de l'Orient.** Premiere partie: En Serbie. [The routes of the Orient. Part I: In Serbia.] 1921 [M 9403-J.49-S5]
- Binet-Valmer: **Memoires d'un engage volontaire.** [Memories of a voluntary engagement. 1918] [M 9403-B4.44]
- Blaschke: **Carl v. Clausewitz.** 1934 [M 943-B92 (CL)]
- Blau: **Die operative Verwendung der Deutschen Kavallerie im Weltkrieg 1914-18.** [The operative employment of the German cavalry in the World War, 1914-1918.] 1934 [M 9403-G6-C.43]
- Boillot: **Un Officier d'Infanterie a la Guerre.** [An officer of infantry in the World War.] 1927 [M 9403-G4-B.44]
- v. Bose: **Flusubergange im Weltkriege.** Heft 7: Dargestellt am Ubergang des XXII. Res. Korps über die Save bei Belgrad Anfang Oktober 1915 . . . [Tactical experiences of the World War, 1914-18. Part 7: River crossings in the World War. Crossing of the Save at Belgrad by the XXII Reserve Corps, October, 1915.] 1934 [M 9403-H3-M.43]
- Bouchacourt: **Essai sur la psychologie de l'infanterie.** [Essay on the psychology of infantry.] 1933 [M 404-J1-A.44]
- v. Brandis: **Von Lausen, Kohldampf und Etappenhengsten.** [Concerning lice, coal smoke, and service of supply hounds.] 1932 [M 9403-B3-F.43]
- Bray: **Shifting sands.** The true story of the Arab Revolt. 1934 [M 9403-J.56-P1.42]
- Bugnet: **Mangin.** (French text) 1934 [M 9403-E4-D.44-B92(MA)]
- v. Bülow: **Geschichte der Luftwaffe.** [History of the air arm.] 1935 [M 409-C.43]
- Castex: **Theories strategiques.** [Strategical theories.] Vol. IV. 1933 [M 8501-A.44]
- Chaine: **Les memoires d'un Rat (1914-1918).** [The memories of a rat, 1914-1918.] 1930 [M 9403-B4.44]
- Chamberlin, H.D.: **Riding and schooling horses.** 1934 [M 403-G4.73]
- Chamberlin, W.H.: **Russia's iron age.** 1934 [947.09]
- China. War Dept.: **Field Service Regulations of the Chinese National Army.** (Translated by Capt. J.V. Davidson-Houston, & Lt. R.V. Dewar-Durie) 1934 [M 506-A4.51]

- Chrétien: **Les Methodes de Prevision du temps.** [The system of the weather forecast.] 1934 [M 607]
- Close: **Challenge: Behind the face of Japan.** 1934 [M 209-C.73-D4E-8F5]
- v.Cochenhauen: **Die Wehrwissenschaften der Gegenwart.** [The science of war of the present.] 1934 [M 501-A.43]
- Colby, C.C.: **Source book for the economic geography of North America.** 1930 [M 910-C.73]
- Colby, E.: **American militarism.** 1934 [M 103-C.73]
- Commerce, Dept. of: **Standards Yearbook, 1931, 1932 & 1933.** [389]
- Comptroller General: **Decisions of the comptroller General of the United States.** Vol. 13, July 1, 1933, to June 30, 1934. 1934 [363.2]
- Cornet-Auquier: **Un Soldat sans peur et sans reproche.** [A soldier without fear or reproach.] 1918 [M 9403-B4.44]
- Crutwell: **A history of the Great War, 1914-1918.** 1934 [M 404-C.73-C]
- Cutchins: **A famous command: The Richmond Light Infantry Blues.** 1934 [M 404-C.73-C]
- Delbrück: **Numbers in History.** 1913 [M 901-E]
- Desaubliaux: **Les Rues. Etapes d'un combattant.** [The fighter. Stages of development of a soldier.] 1920 [M 9403-B4.44]
- Dictionary of American Biography.** Vol. XV: Platt-Roberdeau. 1935 [973-B920]
- Diesel: **Vom Verhängnis der Völker.** [The destiny of the people.] 1934 [943]
- Drach: **Images secretes allemandes de la guerre.** [German secrets of the War.] 1933 [M 9403-H5-E2]
- Dupont: **L'Attente. Impressions d'un officier de Legere (1915-1916-1917).** [The expectation. Impressions of an officer in the Light Cavalry, 1915-1916-1917.] 1918 [M 9403-G6-B4.44]
- Edwards: **The natural history of revolution.** 1927 [323.2]
- Encyclopaedia of the Social Sciences.** Vol. XIV: Ser-Tra. 1934 [303]
- Escholier: **Le Sel de la Terre.** [The salt of the earth.] 1924 [M 9403-B3-F.44]
- Esperandieu: **Guide Pratique pour la Lecture et l'emploi de la Carte de l'Etat-Major.** [Official General Staff Map.] 1934 [M 604-E5]
- Fawcett & Hooper: **The fighting at Jutland.** 1934 [M 9403-L3-C:6-D]
- Federal Digest.** 1934 annual. [345.5]
- Federal Reporter, 2d Series.** Vol. 71: July-September, 1934; Vol. 72: October-November, 1934. [345.41]
- Federal Supplement.** Vol. 7: July-October, 1934. [345.41]
- Field: **Economic handbook of the Pacific area.** 1934 [990]
- Foerster: **Unter dem Roten Kreuz im Weltkriege.** [Under the Red Cross in the World War.] 1934 [M 9403-B6]
- Foulkes: **"Gas!" The story of the Special Brigade.** 1934 [M 9403-H3-D7]
- France. Ministère de l'Interieur: **Instruction pratique du 25 novembre 1931 sur la defense passive contre les attaques aeriennes.** [Practical instruction on the passive defense against aerial attacks.] Text and Annexes Nos. 1 to 6 (incl.). 1934 [M 503-C6]
- France. Ministère de la Guerre:
- Les Armees francaises dans la Grande Guerre.** [The French Army in the World War.] Tome IV—Vol. 1; & Tome V—Vol. 1. 1927 [M 9403-E4-D.44-C]
 - Instruction provisoire pour les unites de dragons portees.** [Provisional instructions for portee dragoon units.] 1933 [M 406-G1-C1.44]
 - Instruction provisoire sur l'organisation et la mise en oeuvre des destructions.** [Provisional instructions on the organization and the execution of demolitions.] 1933 [M 506-A4.44]
 - Règlement des unites de chars legers.** [Regulations for light tank units.] 2 vols. 1933 [M 405-J4]

- Freeman: **R. E. Lee. A biography.** Vols. I-IV, incl. 1934 [M 9737-E4-C.75-B92(LE)]
- French: **The first year of the American Revolution.** 1934 [M 9733-J:75]
- Freytag-Loringhoven: **Generalship in the World War.** Comparative studies. (Translation from the German) 1934 [M 9403-H1-D.43]
- de la Garennie: **Le cavalier au service en campagne.** [The cavalryman in field service.] 1932 [M 406-J1-A.44]
- Germany. Marinearchiv: **Der Krieg zur See, 1914-1918.** [The naval war, 1914-1918.] 1935 [M 9403-L8]
- Germany. Reichswehrministeriums: **Sanitätsbericht über das Deutsche Heer im Weltkrieg 1914/1918.** [Sanitary reports of the German Army in the World War, 1914-1918.] Vol. III. 1934 [M 9403-G21-C.43]
- Gibson, G.: **Journal of a soldier under Kearny and Doniphan.** 1935 [M 97362-G3-E]
- Gibson & Harper: **The riddle of Jutland.** An authentic history. 1934 [M 9403-L8-C:6-D.42]
- de Golen: **Scandales médicaux pendant la guerre.** [Medical scandals during the War.] 1933 [M 9403-G21-C.44]
- Gough: **The March retreat.** 1934 [M 9403-J.44:8-G1]
- de Granvilliers: **Le prix de l'homme.** [The price of a man.] 1920 [M 9403-B3-F.44]
- Graves: **I, Claudius;** from the autobiography of Tiberius Claudius. 1934 [M 937-B92(CL)]
- Great Britain. War Office: **Manual of Operations on the North-West Frontier of India.** 1925 [M 503-B4]
- Grosze Brockhaus. Vol. 19. 1934 [034.3]
- Gwynn: **Imperial policing.** 1934 [M 310-C.42]
- Haushofer: **Japan und die Japaner.** Eine Landes- und Volkstunde. [Japan and the Japanese.] 1933 [952]
- Headlam: **History of Guards Division, in the Great War, 1915-18.** 2 vols. 1924 [M 9403-H6-C.42-G3-C(GU)C]
- Hennig: **Geopolitik.** [Geopolitics.] 1931 [M 910-C.43]
Einführung in die Geopolitik. [An introduction to geopolitics.] 1934 [M 910-C.43]
- Hettner: **Grundzüge der Landeskunde.** I Bd.: Europa; II Bd.: Die auszureuropäischen Erdteile. [The essential features of chorography. Vol. I: Europe; Vol. II: Non-European.] 1930 [M 910-A]
- Hierl: **Grundlagen einer deutschen Wehrpolitik.** [Foundations of a German war policy.] 1931 [M 103-C.43]
- Höfer: **Das italienische Militär-Veterinärwesen unter Friedens- und Kriegsverhältnissen.** [The Italian military veterinary service in peace and in war.] 1934 [M 421-C.43-A]
- Holme: **The life of Leonard Wood.** 1920 [M 973-B92(WO)]
- Hoover: **The state papers and other public writings of Herbert Hoover.** 1934 [M 973-B92 (HO)]
- James: **Faraway campaign.** 1934 [M 9403-J.56-Q]
- Janin: **Ma mission en Sibirie, 1918-1920.** [My mission in Siberia 1918-1920.] 1933 [M 9403-J.57]
- Jeans: **Through space and time.** 1934 [520]
- K.KI: **Hors du Cadre.** [The disabled cadre.] 1923 [M 9403-G7-B4.44]
- Kearsey: **A study of the strategy and tactics of the Mesopotamian Campaign, illustrating the principles of war.** 1934 [M 9403-J.56-M]
- Keller: **The dictionary of dates.** 2 vols. 1934 [903]
- Keyes: **The naval memoirs of Admiral of the Fleet Sir Roger Keyes.** The Narrow Seas to the Dardanelles, 1910-1915. 1934 [M 9403-L4-D 992(KE)]

- Kimpflin: **Le Premier Souffle**. Un fantassin sur la trouee de Charmes (aout-septembre 1914). [The first blast. An infantryman at the gap at Charmes, August-September, 1914.] 1920 [M 9403-B4.44]
- Klotz: **The Berlin Diaries**. 1934 [M 943-A]
- v.Langsdoiff: **Taschenbuch der Luftflotten, 1934**. [Handbook of the air fleets, 1934.] 1934 [M 409-E.43-A]
- Larcher: **Le 1er Corps a Dinant, Charleroi, Gulse (aout 1914)**. [The I Corps at Dinant, Charleroi, Gulse, August, 1914.] 1932 [M 9403-H6-C.44-F3-C1C]
- League of Nations:
Armaments Year-Book, 1934. 1934 [M 104-A5]
Statistical Year-Book of the League of Nations, 1933-1934. 1934 [M 104-A6]
- Le Bon: **The psychology of revolution**. (Translation) 1913 [323.2]
- v.Leers: **Atlas zur Deutschen Geschichte der Jahre 1914 bis 1933**. [An atlas of German history for the period 1914-1933.] 1934 [M 910-C.43]
- Le Gros: **The genesis of the battle of the Marne, September 1914**. (Translation from the French) 1919 [M 9403-J.44:4N5]
- Lelievre: **La fleau de Dieu**. [The scourge of the Almighty.] 1919 [M 9403-B4.44]
- Lloyd George: **The war memoirs of David Lloyd George**. Vols. III & IV. 1934 [M 942-B92(LL)]
- Letard: **Trois mois au Premier Corps de Cavalerie**. [Three months with the I Cavalry Corps.] 1919 [M 9403-H6-C.44-H3-C1C]
- Lockhart: **Retreat from glory**. 1934 [M 942-B92(LO)]
- Loustaunau-Lacau: **Les echos tactiques de l'etranger: Infanterie et chars de combat**. [Extracts from tank tactics of foreign countries. Infantry and combat cars.] 1932 [M 405-J1-A]
- Lutz: **Fall of the German Empire, 1914-1918**. (Translation from the German) 2 vols. 1932 [M 9403-C6-C.43]
- v.Manteuffel: **Reiterel in Gefecht**. [Cavalry in combat.] 1934 [M 406-J1-A.43]
- Marie, Queen of Rumania: **The story of my life**. 1934 [949.8-B92(MA)]
- Maslovsky: **Mirovaya Voyna na Kavkazskom Fronte, 1914-1917**. [The Caucasus Front in the World War, 1914-1917.] 1933 [M 9403-J.47]
- Maugars: **Avec la Marocaine**. [With the Moroccans.] 1919 [M 9403-B4.44]
- Maze: **A Frenchman in khaki**. 1934 [M 9403-B4.44]
- McCormick: **Ulysses S. Grant, the great soldier of America**. 1934 [M 9737-E4-C.73-B92(GR)]
- McKinley: **Democracy and military power**. 1934 [321.4]
- Mead: **Mind, self and society**. Vol. I. 1934 [150]
- Minrath: **Das englisch-japanische Bundnis von 1902, die Grundlegung der Entente-politik im Fernosten**. [The Anglo-Japanese alliance of 1902.] 1933 [327.42(.52)]
- de Mondesir: **Souvenirs et Pages de Guerre**. [Recollections and pages of the War (1914-1919).] 1933 [M 9403-E4-D.44-B92(MO)]
- Mordacq: **Le Drame de l'Yser. La surprise des gas (Avril 1915)**. [The drama of the Yser. The gas surprise, April, 1915.] 1933 [M 9403-J.44:5-D]
- Moukbil-Bey: **La Campagne de l'Irak 1914-1918**. [The Irak campaign, 1914-1918.] 1933 [M 9403-J.56-M]
- Myers: **Study in personality: General George Brinton McClellan**. 1934 [M 9737-E4-C.73-B92(MD)]
- Naegelen: **Les supplices**. [The horrors in war.] 1927 [M 9403-C8-J2-F]
- v.Niedermayer: **Die Sowjetunion, eine geopolitische Problemstellung**. [The Soviet Union. A geopolitical problem.] 1934 [M 910-C.47]
- Nordmann: **A Coups de Canon**. [Cannon shots.] 1917 [M 9403-G7-B.44]

- v.Oertzen: **Grundzuge der Wehrpolitik.** [The principles of war politics.] 1933 [M 103-C.43]
- Palmer: **Bliss, Peacemaker.** The life and letters of General Tasker Howard Bliss. 1934 [M 9403-E4-C.73-B92(BL)]
- Paris: **Histoire de la Guerre Civile en Amerique.** [History of the Civil War in America.] 7 vols. 1890 [M 9737-E3]
- Perrigault: **On se bat dans le desert.** [Combat in the desert.] 1933 [M 503-B4.44]
- Peron: **List of French abbreviations used in military papers.** 1923 [M 202-R.73.44]
- Pfohl: **Kurz-Word-Lexikon.** [A German dictionary of abbreviations.] 1934 [433]
- Pottecher: **Lettres d'un fils (1914-1918).** [Letters of a son, 1914-1918.] 1926 [M 9403-B4.44]
- Prandtl: **Gaskampfstoffe und Gasvergiftungen.** [Protection against gas.] 1933 [M 503-C4]
- Revol: **La Victoire de Macedoine. Contribution a l'etude de la guerre in montagne.** [Victory in Macedonia. A critical study of operations in mountain warfare.] 1931 [M 9403-J.49-S]
- Rimbault: **Journal de Campagne d'un Officier de Ligne.** [A journal of operations, August, 1914-February, 1915.] 1917 [M 9403-B4.44]
Propos d'une Marmite, 1915-1917. [Pertaining to the bombarded.] 1920 [M 9403-B4.44]
- Reynolds: **The Saar and the Franco-German problem.** 1934 [327.44(.43)]
- Richmond: **Sea power in the modern world.** 1934 [M 8501-H.42]
- Robert: **Impressions de Guerre d'un soldat chretien.** [The impressions of the War of a Christian soldier.] 1920 [M 9403-B4.44]
- Rouquerol: **Charleroi, aout 1914.** [Charleroi, August, 1914.] 1932 [M 9403-J.44:4-D]
- Salmon: **Campagne de mouvement en 1914.** [A moving campaign of 1914.] 1932 [M 9403-J.44:4]
Etude sur la cavalerie suivit de cas concret. [Study of cavalry from a specific example.] 1924 [M 9403-G6-J1-A]
- Sapper: **Allgemeine Wirtschafts- und Verkehrsgeographie.** [A geography of commerce and transportation.] 1930 [380]
- Sauzey: **La Guerre en fourrures.—Notes de campagne.** [The war in furs.] 1933 [M 9518]
- Scholz: **Kriegsgefangen in Sibirien.** [Prisoners of war in Siberia.] 1934 [M 9403-J.57]
- Silberschmidt: **Großbritannien und die Vereinigten Staaten.** [Great Britain and the United States.] 1932 [327.73(.42)]
- Simoneit: **Wehrpsychologie.** [Military psychology.] 1933 [M 501-G1.43]
- Snowden: **Memoirs of a spy.** 1934 [M 9403-H5-E4]
- Spencer: **The history of gas attacks upon the American Expeditionary Forces during the World War.** 4 vols. 1928 [M 9403-G23-J]
- Statistisches Jahrbuch fur das Deutsche Reich. [Statistical yearbook for Germany, 1934.] [943]
- Statutes at large of the United States of America from March 1933 to June 1934. Vol. XLVIII—Part 1. 1934 [345.11]
- Steel-Maitland: **The new America.** 1934 [973-A]
- Svanstrom: **A short history of Sweden.** 1934 [948.9]
- Theuerkauff: **Tiere im Krieg.** [Animals in war.] 1932 [M 403-G1.43]
- Thomazi: **Les Marins a terre.** [The French naval forces on land in the World War.] 1933 [M 9403-L3-D.44]
- Tompkins: **Chasing Villa.** The story behind the story of Pershing's Expedition into Mexico. 1934 [M 973-913-D5]

- Top: **Avec le 1er corps d'Armée.** Un groupe de 75 (1 août 1914-13 mai 1915). [With the 1 Army Corps. A regiment of 75's (1 August, 1914-13 May, 1915). 1919 [M 9403-H6-C.44-F3-C1C]
- Touber: **Le service de Santé Militaire au grand quartier General Français (1918-1919).** [The services of the French military medical organizations, 1918-19.] 1934 [M 9403-G21-C.44]
- v.Tschischwitz: **Blauiacken und Feldgrau gegen Oesel.** [Blue Jackets and Field Gray against Oesel (Island).] 1934 [M 9403-L3-C:7]
- 28th Division: **Pennsylvania in the World War.** An illustrated history of the Twenty-Eighth Division. 1921 [M 9403-F5-C.748]
- v.Ungern-Sternberg: **Krieg in China.** Der Bürgerkrieg in China und der chinesisch-japanische Konflikt. [War in China. The civil war in China and the Chinese-Japanese conflict.] 1933 [M 951]
- United States Reports.** Vol. 291: October term, 1933. 1933 [345.4]
- Van de Water: **Glory-hunter.** A life of General Custer. 1934 [M 973-Q-818]
- Vial: **Territoriaux de France.** [The French territorials.] 1919 [M 205-C.44-B3]
- Villate: **Foch a la Marne.** La 9e armée aux marais de Saint-Gond. [Foch at the Marne. The Ninth Army at Marais de Saint-Gond, 5-10 September, 1914.] 1933 [M 9403-J.44-4N5-M]
- Volckheim: **Deutsche Kampfwagen in Angriff, 1918.** [German tanks in attack, 1918.] 1934 [M 9403-G5-G1-A.43]
- War Department:
Annual report of the Chief of Engineers, U.S. Army, 1934. 2 vols. [M 410-C.73-D]
Handbook on military geography of the Panama Canal Zone. 2 vols. 1934 [M 910-C.865]
Report of the Secretary of War to the President, 1934. [M 204-C.73-E1-D]
- Wegener: **China. Eine Landes- und Volkstunde.** [China. A nation and its national life.] 1930 [951]
- v.Wehr: **Tannenberg. Wie Hindenburg die Russen schlug.** [Tannenberg. How Hindenburg defeated the Russians.] 1934 [M 9403-J.47:4-R4]
- Westard: **Oertzenscher Taschenkalender für die Offiziere des deutschen Reichsheeres.** [Handbook of the German Army.] 1935 [M 209-C.43-C]
- Wilkie: **American Secret Service Agent.** 1934 [M 505-E4]
- Williams: **The story of a grateful citizen.** An autobiography by Clark Williams. 2 vols. 1934 [973-B92(W1)]
- Wilson: **The mind of Napoleon.** A study of Napoleon, Mr. Roosevelt, and the money power. 1934 [M 94405-N3-E]
- World almanac and book of facts for 1935.** 1935 [310]
- Wulff: **Die österreichisch-ungarische Donauflotte im Weltkriege, 1914-1918.** [The Austro-Hungarian Navy in the World War, 1914-1918.] 1934 [M 9403-L3-C.436]
- Yeates: **Winged victory.** 1934 [M 9403-G9-C.42]

Section 8

READERS' GUIDE AND SUBJECT INDEX

- A**
- Air Arm
 - Ammunition
 - Animals
 - Antiaircraft Artillery
 - Antiaircraft Defense
 - Antigas
 - Antitank
 - Applicatory Exercises
 - Armaments
 - Armies (See country)
 - Command & Staff
 - Mobilization
 - Organization & Equipment
 - Training
 - Armored Cars
 - Art of War Strategy
 - Artillery (Other Arms, similarly)
 - Command & Staff
 - Organization & Equipment
 - Training Tactics
 - Attack
- B**
- Breakthrough Operations
- C**
- Camouflage
 - Cavalry
 - Chemical Warfare Service
 - Civilian Conservation Corps
 - Coast Artillery
 - Command, Staff & Logistics
 - Counterattack
- D**
- Defiles
 - Delaying Action
 - Disarmament
- E**
- Engineers
 - Envelopment
 - Equitation
- F**
- Fire Superiority
 - Flank Operations
 - Formations, Battle
 - Fortifications
 - France (Army of)
 - Future Warfare
- G**
- Gas & Smoke (Use of)
 - Geography (Military)
 - Germany (Army of)
 - Government (Military)
 - Great Britain (Army of)
- H**
- History (General)
- I**
- Hygiene
- J**
- Infantry
 - Intelligence (Military)
 - International relations
 - Italy (Army of)
- K**
- Japan (Army of)
 - Joint Operations
- L**
- Large Units, Organization & Tactical Functions (Army, Corps & Division)
 - Law, Military & International
 - Liaison
- M**
- Machine Guns
 - Maneuvers
 - Map Problems
 - Marches
 - Marine Corps
 - Mechanization
 - Medical Service
 - Meeting Engagement
 - Mobilization
 - Motorization
- N**
- National Defense
 - Naval Warfare
 - Navies (See country)
 - Night Operations
- O**
- Obstacles
 - Ordnance Service
 - Organization
 - Overseas Expeditions
- P**
- Penetration
 - Position Warfare
 - Principles of War
 - Pursuit
- Q**
- Quartermaster Service
- R**
- Raids
 - Riots
 - River Crossings
- S**
- Security
 - Signal Service
 - Special Warfare
 - Supply
- T**
- Tactics Operations
 - Evolution of Tactics
 - General topics
 - Defensive combat
 - Offensive combat
 - Reconnaissance
 - Special warfare
 - Troop movements
 - Tanks
 - Technology
 - Terrain
 - Topography
 - Surveying
 - Transportation
 - Turning Movements
- U**
- United States (Army of)
- V**
- Veterinary Service
- W**
- War Peace
 - Wars (Ancient, Medieval, Modern)
 - World War
 - E—General Military History
 - F—Zone of Interior
 - G—Arms & Services
 - H—Military Conduct of the War in the Field
 - J—Campaigns & battles
 - L—Naval History
- X**
- Y**
- Z**

List of Periodicals Indexed

and

Key to Abbreviations

A&N Jour —Army & Navy Journal	Mil Surg —Military Surgeon
A&N Reg —Army & Navy Register	Nav Inst Proc —Naval Institute Proceedings
AN&AF Gaz —Army, Navy & Air Force Gazette (Great Britain)	Pion —Pioniere (Germany)
A Ord —Army Ordnance	QM Rev —Quartermaster Review
A Quar —Army Quarterly (Great Britain)	Rev Ej Mar —Revista del Ejercito y de la Marina (Mexico)
Bul Belge Mil —Bulletin Belge des Sciences Militaires (Belgium)	Rv l'Air —Revue de l'Armée de l'Air (France)
Can Def Quar —Canadian Defence Quarterly (Canada)	Rv d'Art —Revue d'Artillerie (France)
Cav Jour —Cavalry Journal	Rv de Cav —Revue de Cavalerie (France)
Cav Jour [GB] —Cavalry Journal (Great Britain)	Rv d'Inf —Revue d'Infanterie (France)
CA Jour —Coast Artillery Journal	Rv Gen Mil —Revue du Génie Militaire (France)
Es e Naz —Esercito e Nazione (Italy)	Rv Mil Fran —Revue Militaire Française (France)
FA Jour —Field Artillery Journal	Riv Art e Gen —Rivista di Artiglieria e Genio (Italy)
Ftg Forc —Fighting Forces (Great Britain)	RAF Quar —Royal Air Force Quarterly (Great Britain)
Inf Jour —Infantry Journal	RASC Quar —Royal Army Service Corps Quarterly (Great Britain)
Jour R Art —Journal Royal Artillery (Great Britain)	Roy Eng Jour —Royal Engineers Journal (Great Britain)
Jour RUSI —Journal of the Royal United Service Institution (Great Britain)	Roy Tk C Jour —Royal Tank Corps Journal (Great Britain)
Jour USII —Journal of the United Service Institution of India (Great Britain—India)	Sanct Chris —Sanct Christophorus (Germany)
MC Gaz —Marine Corps Gazette	SC Bul —Signal Corps Bulletin
Mil Mitt —Militärwissenschaftliche Mitteilungen (Austria)	Wr & Wf —Wehr und Waffen (Germany)
Mil-Woch —Militär-Wochenblatt (Germany)	Ws & Wr —Wissen und Wehr (Germany)
Mil Eng —Military Engineer	For Pol Rep —Foreign Policy Association: Foreign Policy Reports
Jan —January	Jul —July
Feb —February	Aug —August
Mar —March	Sep —September
Apr —April	Oct —October
May —May	Nov —November
Jun —June	Dec —December

A

AERIAL RECONNAISSANCE

Air reconnaissance and ground strategy. (Mil Mitt—Jul 1934)
 The participation of Moroccan aviation in the intelligence work preparatory to the subjugation of the mountainous groups of Djebel Sagho and the Central Grand Atlas, January to June 1933. (Rv l'Air—Jul 1934)

AERIAL WARFARE

Air bombardment regulation. (Nav Inst Proc—Nov 1934)

AIR ARM

Command and Staff

The air position. (RAF Quar—Jan 1935)
 National policy on aviation. (A&N Reg—8 Dec 1934)
 Flight pay recommendations. (A&N Jour—5 Jan 1935)
 Army revises policies governing air officers. (A&N Jour—19 Jan 1935)

Organization and Equipment

Modern air reconnaissance: The importance of unity of command. (Jour RUSI—Nov 1934)
 The air forces of France. (Jour RUSI—Nov 1934)
 Some problems of a technical service. (Jour RUSI—Nov 1934)
 The airplane on board the submarine. (Nav Inst Proc—Jan 1935)
 Navy skyhooks. (Nav Inst Proc—Feb 1935)
 Aerial sounding. (Rv l'Air—Aug 1934)
 Let us "fix the position" of lighter than air aviation. (Rv l'Air—Aug 1934)
 The establishment of regional repair depots. (Rv l'Air—Aug 1934)
 Renewal of lighter than air matériel. (Rv l'Air—Sep 1934)
 Employment of a balloon company. (Riv Art e Gen—Jun 1934)
 The increase of the British and American air corps. (Mil-Woch—4 Sep 1934)
 Survey of aviation. (Mil-Woch—18 Sep, 25 Oct 1934)
 Landing facilities on high seas for airplanes. (Mil-Woch—4 Oct 1934)
 Japan as a world power in military aviation. (Mil-Woch—11 Oct 1934)
 Tactics and armament of French pursuit planes. (Mil-Woch—4 Nov 1934)
 British aviation during the War. (Mil-Woch—25 Nov 1934)
 The air position. (RAF Quar—Jan 1935)
 Speed for economy. (RAF Quar—Jan 1935)
 "What effect are modern developments in aviation, armoured and mechanical vehicles, and automatic weapons, likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)
 General Headquarters air force. (A&N Reg—29 Dec 1934)
 More naval air bases and dirigibles sought. (A&N Jour—17 Nov 1934)
 General Headquarters Air Force. (A&N Jour—29 Dec 1934)
 GHQ Air Force. (A&N Jour—12 Jan 1935)

Training Tactics

Air reconnaissance in open warfare. (Jour RUSI—Nov 1934)
 Modern air reconnaissance: The importance of unity of command. (Jour RUSI—Nov 1934)
 Some problems of a technical service. (Jour RUSI—Nov 1934)
 Accuracy in aerial dead reckoning. (Nav Inst Proc—Nov 1934)

Aérology and the Hawaiian flight. (Nav Inst Proc—Feb 1935)
 The transmission of images from airplanes. (Es e Naz—Jul 1934)
 Air reconnaissance and ground strategy. (Mil Mitt—Jul 1934)
 Flight of a French air formation to Northern Africa. (Rev Ej Mar—Sep 1934)
 The participation of Moroccan aviation in the intelligence work preparatory to the subjugation of the mountainous groups of Djebel Sagho and the Central Grand Atlas, January to June 1933. (Rv l'Air—Jul 1934)
 Notes on physical aptitude for flying duty. (Rv l'Air—Jul 1934)
 The American contribution to celestial navigation as applied to aviation. (Rv l'Air—Jul 1934)
 The air service and the antiaircraft service in 1918. (Rv l'Air—Jul 1934)
 Improvements of the methods of communication between ground stations and aircraft in flight. (Rv l'Air—Jul 1934)
 Let us "fix the position" of lighter than air aviation. (Rv l'Air—Aug 1934)
 Aerial photography and photogrammetry. (Rv l'Air—Aug 1934)
 Fatigues peculiar to aviation. (Rv l'Air—Sep 1934)
 Advice—Ideas—Aphorisms. (Rv l'Air—Sep 1934)
 Ballast for combat aircraft on peace-time missions. (Rv l'Air—Sep 1934)
 Antiaircraft defense in a nation armed without restriction. (Wr & Wf—Jul 1934)
 Attacks of low-flying planes and defense against them. (Wr & Wf—Sep 1934)
 The employment of gas and chemicals in air raids on cities and industrial districts. (Ws & Wr—Jul 1934)
 Employment and application of aerial photography. (Mil-Woch—18 Oct 1934)
 Summary of reports on the joint antiaircraft-air corps exercises held at Fort Knox. (CA Jour—Jan-Feb 1935)
 Navy views universal aviation training plan. (A&N Jour—1 Dec 1934)

ALBERT I, King of the Belgians (1875-1934)

Albert I in 1914. (Rv Mil Fran—Aug 1934)

AMMUNITION

Influence of industrial production on military operations. (FA Jour—Nov-Dec 1934)
 Explosives for mining operations. (Es e Naz—Aug-Sep 1934)

ANIMALS

Survey of the German cavalry. (Bul Belge Mil—Jul 1934)

ANTIAIRCRAFT ARTILLERY

The efficiency of antiaircraft fire. (Riv Art e Gen—Jul 1934)
 Summary of reports on the joint antiaircraft-air corps exercises held at Fort Knox. (CA Jour—Jan-Feb 1935)
 "What effect are modern developments in aviation, armoured and mechanical vehicles, and automatic weapons, likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)

ANTIAIRCRAFT DEFENSE

Air bombardment regulation. (Nav Inst Proc—Nov 1934)
 Comparative experiments of antiaircraft listening methods. (Bul Belge Mil—Aug 1934)

ANTI-ART

Antiaircraft defense of the Army of the Orient. (Rv d'Art—Sep 1934)
The air service and the antiaircraft service in 1918. (Rv l'Air—Jul 1934)
The efficiency of antiaircraft fire. (Riv Art e Gen—Jul 1934)
Antiaircraft defense in a nation armed without restriction. (Wr & Wf—Jul 1934)
Attacks of low-flying planes and defense against them. (Wr & Wf—Sep 1934)
The antiaircraft exercise of London. (Mil-Woch—25 Sep 1934)
German anti-air architecture. (AN&AF Gaz—8 Nov 1934)

ANTITANK

Tanks and antitank weapons. [See Section 2]

ARMAMENTS

The munitions industry. An analysis of the Senate investigation, September 4-21, 1934. (For Pol Rep—5 Dec 1934)
Supervision of the trade in arms. (A Ord—Nov-Dec 1934)
Facts about munitions makers. (A Ord—Nov-Dec 1934)
War à la carte. (MC Gaz—Nov 1934)
Tanks and antitank weapons. [See Section 2.]
Roving guns. (Rv d'Art—Sep 1934, & Jour R Art—Jan 1935)
New thoughts about land warfare. (Riv Art e Gen—Jun 1934)
New tactics. (Riv Art e Gen—Jul 1934)
Motorization and its effect on the conduct of war. (Wr & Wf—Jul, Aug 1934)
The last 200 yards in the attack. A question of armament and organization. (Mil-Woch—4 Sep 1934)
The infantry attack during the last 300 yards. (Mil-Woch—4 Oct 1934)
The arms used during the Chaco War. (Mil-Woch—18 Nov 1934)
World armaments increase. (A&N Reg—3 Nov 1934)

ARMORED CARS

Defense against armored vehicles. (Rv de Cav—Sep-Oct 1934)
New thoughts about land warfare. (Riv Art e Gen—Jun 1934)
French observations concerning the professional army. Demand for a motorized and mechanized army. (Sanct Chris—Jul 1934)
Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug, Sep 1934)
Motorization and its effect on the conduct of war. (Wr & Wf—Jul, Aug 1934)
The new arm. (Inf Jour—Jan-Feb 1935)

ART OF WAR STRATEGY

A chronicle of ordnance. (A Ord—Nov-Dec 1934)
Democracy and the general. (A Ord—Nov-Dec 1934)
British strategy and battles in the Westphalian Campaigns of 1758-1762. (Jour RUSI—Nov 1934)
Chinese lines of communication and their effect on strategy. (Nav Inst Proc—Nov 1934)
War à la carte. (MC Gaz—Nov 1934)
The German military doctrine. [See Section 2.]
Distant reconnaissance. [See Section 2.]
Lessons from Napoleon—3. Friedland. (Mil Eng—Jan-Feb 1935)
The efficiency of an army depends upon the efficiency of its leaders. (Can Def Quar—Jan 1935)

The strategist's mind. (Can Def Quar—Jan 1935)
Movement of large bodies of troops. (Es e Naz—Aug-Sep 1934)
The influence of sea power on the World War. (Mil Mitt—Jul 1934)
Air reconnaissance and ground strategy. (Mil Mitt—Jul 1934)
Questions of sea power and questions of world power. (Mil Mitt—Aug 1934)
Schlieffen in the Pantheon of great captains. (Rv d'Art—Aug 1934)
New thoughts about land warfare. (Riv Art e Gen—Jun 1934)
Motorization and its effect on the conduct of war. Wr & Wf—Jul, Aug 1934)
The development of a commander in peace and in war. (Ws & Wr—Sep 1934)
Concerning the necessity for a doctrine of war. (Ws & Wr—Sep 1934)
Concentration 1914 and today. (Mil-Woch—11 Oct 1934)
Entrance of motorized units at the decisive moment. (Mil-Woch—4 Nov 1934)
War lessons. (Mil-Woch—11, 18 Nov 1934)
The signpost that was missed. (Inf Jour—Nov-Dec 1934)
Warfare in the 18th Century. (Inf Jour—Jan-Feb 1935)
Extracts from "The Conduct of War."—VII. Gravelotte. The fight for the Verdun Road. (Jour R Art—Jan 1935)
A study of mobility in the American Civil War. (A Quar—Jan 1935)
An outline of the principles of war. [See Section 6.]

ARTILLERY

Organization and Equipment

The spirit of the old and the new field artillery. (FA Jour—Nov-Dec 1934)
What good is the battalion commander? (Rv d'Art—Aug 1934)
Motorization and its effect on the conduct of war. (Wr & Wf—Jul, Aug 1934)
The recent reorganization of the field artillery. (FA Jour—Jan-Feb 1935)
Field Artillery motor maintenance. (FA Jour—Jan-Feb 1935)
The development program for artillery design. (FA Jour—Jan-Feb 1935)
"What effect are modern developments in aviation, armored and mechanical vehicles, and automatic weapons, likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)
The Battery Staff T.A. (Jour R Art—Jan 1935)
Our artillery racket. (AN&AF Gaz—29 Nov 1934)
Organization of field artillery units. (A&N Reg—17 Nov 1934)
Reorganization of Field Artillery. (A&N Jour—17 Nov 1934)

Supply

Supply of artillery ammunition in an infantry division. (Riv Art e Gen—Jul 1934)

Training Tactics

Artillery in landing operations. (FA Jour—Nov-Dec 1934)
Should we discard aiming points for rapid preparation of fire? (FA Jour—Nov-Dec 1934)
The battle of Buzancy. (FA Jour—Nov-Dec 1934, Jan-Feb 1935)
Influence of industrial production on military operations. (FA Jour—Nov-Dec 1934)
Practicable means for improving liaison between the infantry and artillery. (SC Bul—Nov-Dec 1934)

Heavy mobile artillery in base defense. (MC Gaz—Nov 1934)
 Artillery in rear guard action. [See Section 2.]
 Hitching the infantry-artillery team for attack. (Cav Jour—Nov-Dec 1934)
 Unilateral observation. Determination of firing factors. (Bul Belge Mil—Jul 1934)
 Equipment for reduced-charge firing at disappearing and silhouette targets. (Bul Belge Mil—Jul 1934)
 A graphical method for finding ranges, deflections, and reduction ratios used with close-in and distant lateral observation. (Bul Belge Mil—Sep 1934)
 Notes on counterbattery. (Es e Naz—Jul 1934)
 A critical study of the siege of Cuautla. (Rev Ej Mar—Aug 1934)
 Considerations concerning the artillery with cavalry. (Rev Ej Mar—Sep 1934)
 A study of artillery densities in the French offensives of 1918. (Rv d'Art—Jul 1934)
 Graphs of descending branches of trajectories for use in high-burst ranging. (Rv d'Art—Jul 1934)
 Calls for artillery fire. (Rv d'Art—Aug 1934)
 What good is the battalion commander? (Rv d'Art—Aug 1934)
 Reflections on time fire. (Rv d'Art—Aug 1934)
 Determination of the horizontal projection of the descending branch of a trajectory for use in high-burst ranging. (Rv d'Art—Aug 1934)
 Roving guns. (Rv d'Art—Sep 1934, & Jour R Art—Jan 1935)
 Combined observation by two observers at opposite ends of a short base line. (Rv d'Art—Sep 1934)
 Determination of elements of the descending branch of a trajectory. (Rv d'Art—Sep 1934)
 Use of heavenly bodies as aiming points and reference points. (Rv d'Art—Sep 1934)
 Division schools of fire for infantry mortars. (Rv d'Art—Sep 1934)
 Artillery fires. (Riv Art e Gen—Jun 1934)
 Employment of artillery. (Riv Art e Gen—Jun 1934)
 Ballistic calculations. (Riv Art e Gen—Aug-Sep 1934)
 The laws of dispersion as the basis of the theory for gunnery. (Wr & Wf—Aug 1934)
 Climatic correction by shooting. (Wr & Wf—Sep 1934)
 Attacks of low-flying planes and defense against them. (Wr & Wf—Sep 1934)
 Advantages of ground observation for artillery. (Wr & Wf—Sep 1934)
 Unilateral conduct of fire. (FA Jour—Jan-Feb 1935)
 Artillery strengths of the French offensives of 1918. (FA Jour—Jan-Feb 1935)
 Hitching the infantry-artillery team for attack. (Inf Jour—Nov-Dec 1934)
 "What effect are modern developments in aviation, armoured and mechanical vehicles, and automatic weapons, likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)
 August 1914. (Jour R Art—Jan 1935)
 The Battery Staff T.A. (Jour R Art—Jan 1935)

ATTACK

The battle of Buzancy. (FA Jour—Nov-Dec 1934, Jan-Feb 1935)
 Will it happen again? (CA Jour—Nov-Dec 1934, Jan-Feb 1935)
 The training of the Army, 1934. (Jour RUSI—Nov 1934)
 Mistaken attacks in the World War. (Nav Inst Proc—Dec 1934)
 Maneuver of fires and compartmenting of terrain. [See Section 2.]

Hitching the infantry-artillery team for attack. (Cav Jour—Nov-Dec 1934)
 Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)
 The last 200 yards in the attack. A question of armament and organization. (Mil-Woch—4 Sep 1934)
 The infantry attack during the last 300 yards. (Mil-Woch—4 Oct 1934)
 British maneuvers 1934. (Mil-Woch—4 Oct 1934)
 Tested by war. (Inf Jour—Jan-Feb 1935)
 The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)

AUSTRIA-HUNGARY (ARMY OF)

Twenty years ago. (Mil Mitt—Aug 1934)
 The battle of Galicia, 1914. (Rv Mil Fran—Aug, Sep 1934)
 Twenty years ago. The Vistula operations in October 1914. (Mil-Woch—25 Oct 1934)
 Austria's armed forces and those of her neighbours. (AN&AF Gaz—22 Nov 1934)

AUXILIARY MILITARY FORCES

Colonial Forces

General principles of the organization of colonial units. (Bul Belge Mil—Aug, Sep 1934)

AVIATION

Illustrated history of "ship-home" aviation. (Rv l'Air—Aug, Sep 1934)
 Man's right to fly. (Rv l'Air—Aug 1934)

B

BALLISTICS

Ballistic calculations. (Riv Art e Gen—Aug-Sep 1934)

BELGIUM (ARMY OF)

The fortification of the French and Belgian frontiers. (Jour RUSI—Nov 1934)
 History of the Belgian Army in the World War.—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)
 Military operations on the eastern frontier of the Belgian Congo during the World War. (Bul Belge Mil—Jul 1934)
 How wide rivers are crossed. (Bul Belge Mil—Jul 1934)
 History of the Belgian Army in the World War.—The attack on the machine-gun nest at Craonne Farm in August 1918, by the 1st Battalion, 4th Line Regiment. (Bul Belge Mil—Aug 1934)
 General principles of the organization of colonial units. (Bul Belge Mil—Aug, Sep 1934)
 History of the Belgian Army in the World War.—The battle of Budingen, 18 August 1914. (Bul Belge Mil—Sep 1934)
 Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)
 Albert I in 1914. (Rv Mil Fran—Aug 1934)

BOLIVIA (ARMY OF)

Equipment and clothing in the Chaco War. (Mil-Woch—4 Nov 1934)

BREAKTHROUGH OPERATIONS

The employment of cavalry after a successful breakthrough by tanks. (Mil-Woch—11 Sep 1934)

C

CANADA (ARMY OF)

The efficiency of an army depends upon the efficiency of its leaders. (Can Def Quar—Jan 1935)

Canada and Imperial Defence. (Can Def Quar—Jan 1935)

Officers' winter training in Canada. (AN&AF Gaz—13 Dec 1934)

CAVALRY

History

An early treatise on cavalry. (Cav Jour—Nov-Dec 1934)

Cavalry battle honours. (Cav Jour [GB]—Jan 1935)

The city and country of Hanover in the history of German cavalry. (Cav Jour [GB]—Jan 1935)

Organization and Equipment

Modern cavalry: Missions of army cavalry. (Cav Jour—Nov-Dec 1934)

The Indian cavalry. (Cav Jour—Nov-Dec 1934)

Modern cavalry head-dresses. (Cav Jour [GB]—Jan 1935)

Survey of the German cavalry. (Bul Belge Mil—Jul 1934)

Modern cavalry. (Rev Ej Mar—Aug 1934)

The restoration of cavalry. (Rev Ej Mar—Sep 1934)

Expand Ft. Knox mechanization. (A&N Jour—1 Dec 1934)

Training Tactics

Distant reconnaissance. [See Section 2.]

Modern cavalry: Missions of army cavalry. (Cav Jour—Nov-Dec 1934)

Field exercises and practice march, 1st Squadron, 8d Cavalry. (Cav Jour—Nov-Dec 1934)

The cavalry participation in the Third Corps Area maneuvers. (Cav Jour—Nov-Dec 1934)

Stratosphere cavalry. (Cav Jour—Nov-Dec 1934)

The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1935)

Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)

Cavalry battle honours. (Cav Jour [GB]—Jan 1935)

Survey of the German cavalry. (Bul Belge Mil—Jul 1934)

History of the Belgian Army in the World War. —The battle of Budinghen, 18 August 1914. (Bul Belge Mil—Sep 1934)

Several troops of cavalry in a reestablishment of contact. (Es e Naz—Jul 1934)

What should be the scope of the topographical instruction of infantry and cavalry officers? (Rev Ej Mar—Jul 1934)

A solution to the problem presented to cavalry officers by "Revista del Ejercito y de la Marina." (Rev Ej Mar—Aug 1934)

Considerations concerning the artillery with cavalry. (Rev Ej Mar—Sep 1934)

Lost opportunities. (Rev de Cav—Sep-Oct 1934)

The cavalry operations in the High Atlas country, April-August 1933. (Rev de Cav—Sep-Oct 1934)

Cavalry or motorization problem. (Mil-Woch—4 Sep 1934)

The employment of cavalry after a successful breakthrough by tanks. (Mil-Woch—11 Sep 1934)

Experiences of the 1934 Marathon ride. (Mil-Woch—13 Sep 1934)

Entrance of motorized units at the decisive moment. (Mil-Woch—4 Nov 1934)

The German cavalry in Poland in 1914-15. (Mil-Woch—4 Nov 1934)

Some cavalry actions and tank comparisons. (Jour R Art—Jan 1935)

CHEMICAL WARFARE SERVICE

The effect of chemical warfare agents on quartermaster supplies. (QM Rev—Nov-Dec 1934)

Mustard gas, an offensive agent of war. (Es e Naz—Jul 1934)

Chemical troops in the World War. (Pion—Aug 1934)

What will be the role of the bacteriologist in the next war? (Rev Ej Mar—Jul 1934)

The employment of gas and chemicals in air raids on cities and industrial districts. (Wa & Wr—Jul 1934)

Chemicals—How, When and Where? (CA Jour—Jan-Feb 1935)

CWS in infantry division headquarters. (A&N Jour—1 Dec 1934)

CHINA (ARMY OF)

Chinese lines of communication and their effect on strategy. (Nav Inst Proc—Nov 1934)

The peace of North China. (Inf Jour—Jan-Feb 1935)

CIVILIAN CONSERVATION CORPS

An analysis of physical examinations for the C.C.C. at Richmond, Virginia, October 1 to 15, 1934. (Mil Surg—Feb 1935)

COAST ARTILLERY

The siege of Tsingtau. (CA Jour—Nov-Dec 1934)

Fire adjustment. (CA Jour—Nov-Dec 1934)

Offsetting the angular travel director. (CA Jour—Nov-Dec 1934)

Rhodes and morale in coast defense. (CA Jour—Jan-Feb 1935)

A CPX truck. (CA Jour—Jan-Feb 1935)

Fire adjustment. (CA Jour—Jan-Feb 1935)

Doubling the efficiency of the C.A. Reserve. (CA Jour—Jan-Feb 1935)

COMMAND, STAFF, AND LOGISTICS

How industry armed for defense. (A Ord—Nov-Dec 1934)

Democracy and the general. (A Ord—Nov-Dec 1934)

The GHQ Command Post Exercise. (QM Rev—Nov-Dec 1934)

The need for a special combined staff. (Jour RUSI—Nov 1934)

Modern air reconnaissance: The importance of unity of command. (Jour RUSI—Nov 1934)

Some problems of a technical service. (Jour RUSI—Nov 1934)

The security of supply. (Jour RUSI—Nov 1934)

The German military doctrine. [See Section 2.]

The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1935)

Joint navy and army procurement. (Nav Inst Proc—Jan 1935)

La Palabra del Gringo! Leadership of the Nicaraguan National Guard. (Nav Inst Proc—Feb 1935)

Supplies and the division in a withdrawal. (RASC Quar—Nov 1934)

The service of supply and evacuation in a cyclist battalion. (Es e Naz—Aug-Sep 1934)

Command and Staff. (Rev Ej Mar—Sep 1934)

Schlieffen in the Pantheon of great captains. (Rev d'Art—Aug 1934)

Peace training and war experience. (Wr & Wf—Aug 1934)

Collection of enemy information. Corps G-2. (Rev Mil Fran—Jul 1934)

Schlieffen or Haeseler? (Mil-Woch—25 Sep 1934)
 The signpost that was missed. (Inf Jour—Nov-Dec 1934)
 Hitching the infantry-artillery team for attack. (Inf Jour—Nov-Dec 1934)
 Younger generals. (Inf Jour—Nov-Dec 1934)
 A study of war time rank. (Inf Jour—Jan-Feb 1935)
 What the Allies knew of the German military plan before the outbreak of the Great War. (A Quar—Jan 1935)
 Caporetto. Comments by an Italian Marshal. (A Quar—Jan 1935)
 America's greatest soldier. (AN&AF Gaz—3 Jan 1935)

COMMUNISM

The dangerous enemy of peace. (A&N Reg—19 Jan 1935)

COUNTERATTACK

"The other side of the hill." No. XIV. The fight for Inverness Copse: 22nd-24th of August, 1917. (A Quar—Jan 1935)

CRYPTOGRAPHY

The contribution of the Cryptographic Bureaus in the World War. (SC Bul—Nov-Dec 1934)

CZECHOSLOVAKIA (ARMY OF)

Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)
 The maneuver in Czechoslovakia. (Mil-Woch—4 Nov 1934)

D

DEFILES

The determination of the degree of defilade. (Bul Belge Mil—Aug 1934)
 The cavalry operations in the High Atlas country, April-August 1933. (Rv de Cav—Sep-Oct 1934)

DEMOLITIONS

Patrol "Nobiling." (Pion—Aug 1934)

DISARMAMENT

The great pacifist hoax. (A Ord—Nov-Dec 1934)
 The disarmament conferences. (Mil Mitt—Jul 1934)

DISCIPLINE

On discipline. (RAF Quar—Jan 1935)

ECONOMICS

E

Germany's trend toward economic isolation. (For Pol Rep—7 Nov 1934)
 Liberia, the League and the United States. (For Pol Rep—21 Nov 1934)
 Prospects in the Caribbean. (MC Gaz—Nov 1934)
 Strategic mineral supplies. 3. Nickel. (Mil Eng—Jan-Feb 1935)
 The economic situation in Italy. (For Pol Rep—16, 30 Jan 1935)
 Agrarian economy and supply in war. (Es e Naz—Jul 1934)
 Motorization of farm implements. (Sanct Chris—Jul 1934)
 The root of war. (AN&AF Gaz—1 Nov 1934)
 Will Japan fight? (AN&AF Gaz—29 Nov 1934)

ENGINEERS

The Engineer School. (Mil Eng—Jan-Feb 1935)
 Strategic mineral supplies. 3. Nickel. (Mil Eng—Jan-Feb 1935)
 Wooden foundation piles. (Mil Eng—Jan-Feb 1935)
 The Fort Peck Dam—The project. (Mil Eng—Jan-Feb 1935)
 Fort Peck Dam—Progress of construction. (Mil Eng—Jan-Feb 1935)
 The Ohio River movable dams. (Mil Eng—Jan-Feb 1935)
 History of the Belgian Army in the World War. —The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)
 How wide rivers are crossed. (Bul Belge Mil—Jul 1934)
 How reinforced concrete resists various means of destruction. (Bul Belge Mil—Sep 1934)
 The new line of French fortifications. (Es e Naz—Jul 1934)
 Explosives for mining operations. (Es e Naz—Aug-Sep 1934)
 The crossing of the San in May 1915. (Mil Mitt—Sep 1934)
 The Belgian flood in 1914. (Pion—Aug 1934)
 Cooperation or subordination. (Pion—Aug 1934)
 Training of the engineer company. (Pion—Aug 1934)
 A field fortification exercise. (Pion—Aug 1934)
 Field engineering spirit. (Pion—Aug 1934)
 Drainage of a position. (Pion—Aug 1934)
 A dam problem. (Pion—Aug 1934)
 Swamp crossings. (Pion—Aug 1934)
 Engineers in localized combat in 1914. (Pion—Aug 1934)
 Patrol "Nobiling." (Pion—Aug 1934)
 Levee crevasses in the Neisse region. (Pion—Aug 1934)
 Employment of engineers in the operations in Morocco in 1933. (Rv Gen Mil—Sep-Oct 1934)
 Map problem: railroad engineers. The battalion of railroad engineers in the retirement. A solution. (Rv Gen Mil—Sep-Oct 1934)
 Trinitrotoluol or pentary? (Wr & Wf—Jul 1934)
 Appreciation of terrain. (Rv Mil Fran—Aug, Sep 1934)
 A bridging exercise. (Roy Eng Jour—Dec 1934)
 The Nile control and irrigation problems of Egypt. (Roy Eng Jour—Dec 1934)
 Temporary roads department. VI. Odds and ends. (Roy Eng Jour—Dec 1934)
 Modern roadmaking and the needs of the army in the field. (A Quar—Jan 1935)

ENVELOPMENT

Distant reconnaissance. [See Section 2.]

EUGENE, Prince of Savoy (1633-1736)

Prince Eugene of Savoy, 1633-1736. (Es e Naz—Aug-Sep 1934)

EVACUATION

The service of supply and evacuation in a cyclist battalion. (Es e Naz—Aug-Sep 1934)

F

FINLAND (ARMY OF)

Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)

FORTIFICATIONS

The siege of Tsingtau. (CA Jour—Nov-Dec 1934)

FRA-GR BRIT

The fortification of the French and Belgian frontiers. (Jour RUSI—Nov 1934)
The new line of French fortifications. (Es e Naz—Jul 1934)
A field fortification exercise. (Pion—Aug 1934)
Fortification through the ages. (Rev Ej Mar—Jul 1934)
A critical study of the siege of Cuautla. (Rev Ej Mar—Aug 1934)
The French fortifications. (Mil-Woch—11 Nov 1934)

FRANCE (ARMY OF)

Colonial Forces

General principles of the organization of colonial units. (Bul Belge Mil—Aug, Sep 1934)

Command and Staff

The best system of defence and control of the North-West Frontier of India (from Chitral to the Persian Frontier inclusive), based on the French and British methods of control and administration. (Jour USII—Oct 1934)
Government and high command in France during the War. (Mil-Woch—18 Nov 1934)

History

The French armies in the World War, Tome V, Volume I. (Bul Belge Mil—Sep 1934)

Organization and Equipment

The fortification of the French and Belgian frontiers. (Jour RUSI—Nov 1934)
The air forces of France. (Jour RUSI—Nov 1934)
The new line of French fortifications. (Es e Naz—Jul 1934)
Flight of a French air formation to Northern Africa. (Rev Ej Mar—Sep 1934)
A study of artillery densities in the French offensives of 1918. (Rv d'Art—Jul 1934)
The participation of Moroccan aviation in the intelligence work preparatory to the subjugation of the mountainous groups of Djebel Sagho and the Central Grand Atlas, January to June 1933. (Rv l'Air—Jul 1934)
French observations concerning the professional army. Demand for a motorized and mechanized army. (Sanct Chris—Jul 1934)
Latest light tanks in foreign armies. (Sanct Chris—Aug 1934)
Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)
Problems of the future. Regular Army of France. (Mil-Woch—25 Oct 1934)
Tactics and armament of French pursuit planes. (Mil-Woch—4 Nov 1934)
The French fortifications. (Mil-Woch—11 Nov 1934)
Artillery strengths of the French offensives of 1918. (FA Jour—Jan-Feb 1935)

Training

A model Moroccan operation. (Nav Inst Proc—Feb 1935)
Comparison of French and German defense methods. (Bul Belge Mil—Jul 1934)
A consideration of the new French regulations for infantry machine-gun units. (Bul Belge Mil—Sep 1934)
The French system of maps. (Es e Naz—Aug-Sep 1934)
Roving guns. (Rv d'Art—Sep 1934, & Jour R Art—Jan 1935)
The last phase of the Moroccan pacification. (Rv Mii Fran—Aug, Sep 1934)
French corps maneuvers at Besancon. (Mil-Woch—11 Oct 1934)
The training of French Reserves. (Mil-Woch—18 Oct 1934)

FRENCH, General Sir John D.P. (1852-1925)

General Sir John French on September 4th. (AN&AF Gaz—6 Dec 1934)

FUTURE WARFARE

What will be the role of the bacteriologist in the next war? (Rev Ej Mar—Jul 1934)

G

GEOGRAPHY (MILITARY)

The land of Charcas. (QM Rev—Nov-Dec 1934)
Two lectures on the Mesopotamia Campaign. 6th November, 1914, to capture of Kut-al-Amara on 29 September, 1915. (Jour USII—Oct 1934)
The Welsh march and the N.-W.F.P. (Jour USII—Oct 1934)
Chinese lines of communication and their effect on strategy. (Nav Inst Proc—Nov 1934)
Captain Vancouver. His work on the Pacific Coast. (Can Def Quar—Jan 1935)
On the southeastern frontier of Lybia. (Es e Naz—Aug-Sep 1934)
Poland's organization for war. (Es e Naz—Aug-Sep 1934)
Travels on the Danube. (Pion—Aug 1934)
Appreciation of terrain. (Rv Mil Fran—Aug, Sep 1934)

GERMANY (ARMY OF)

Command and Staff

The German military doctrine. [See Section 2.]
German militarism and German socialism. (Ws & Wr—Aug 1934)
Concerning the necessity for a doctrine of war. (Ws & Wr—Sep 1934)
The German critics after 1871 and 1918. (Mil-Woch—11 Sep 1934)
Why can't we camouflage. (Mil-Woch—11 Nov 1934)
Officers and books. (Mil-Woch—25 Nov 1934)

Organization and Equipment

The city and country of Hanover in the history of German cavalry. (Cav Jour [GB]—Jan 1935)
Survey of the German cavalry. (Bul Belge Mil—Jul 1934)
Lost opportunities. (Rv de Cav—Sep-Oct 1934)
Experiences of the 1934 Marathon ride. (Mil-Woch—18 Sep 1934)
The German cavalry in Poland in 1914-15. (Mil-Woch—4 Nov 1934)
German anti-air architecture. (AN&AF Gaz—8 Nov 1934)

Training

Artillery in rear guard action. [See Section 2.]
Comparison of French and German defense methods. (Bul Belge Mil—Jul 1934)
The German 14th Division at Saint Gond, 8 September 1914. (Rv d'Inf—Aug 1934)
The importance of schools and troop duty. (Mil-Woch—11 Oct 1934)

GRANT, General Ulysses S. (1822-1885)

America's greatest soldier. (AN&AF Gaz—3 Jan 1935)

GREAT BRITAIN (ARMY OF)

Colonial Forces

General principles of the organization of colonial units. (Bul Belge Mil—Aug, Sep 1934)

Command and Staff

The need for a special combined staff. (Jour RUSI—Nov 1934)

The future of India's defence. (Jour RUSI—Nov—1934)

The best system of defence and control of the North-West Frontier of India (from Chitral to the Persian Frontier inclusive), based on the French and British methods of control and administration. (Jour USII—Oct 1934)
Younger generals. (Inf Jour—Nov-Dec 1934)

Organization and Equipment

Air reconnaissance in open warfare. (Jour RUSI—Nov 1934)

Some problems of a technical service. (Jour RUSI—Nov 1934)

The best system of defence and control of the North-West Frontier of India (from Chitral to the Persian Frontier inclusive), based on the French and British methods of control and administration. (Jour USII—Oct 1934)
The Indian cavalry. (Cav Jour—Nov-Dec 1934)
Cavalry battle honours. (Cav Jour [GB]—Jan 1935)

Modern cavalry head-dresses. (Cav Jour [GB]—Jan 1935)

Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug, Sep 1934)

The increase of the British and American air corps. (Mil-Woch—4 Sep 1934)

The British experimental brigade. (Mil-Woch—11 Sep 1934)

Development in the British Army. (Mil-Woch—18 Oct 1934)

British aviation during the War. (Mil-Woch—25 Nov 1934)

The air position. (RAF Quar—Jan 1935)

"What effect are modern developments in aviation, armoured and mechanical vehicles, and automatic weapons, likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)

August 1914. (Jour R Art—Jan 1935)

The Battery Staff T.A. (Jour R Art—Jan 1935)

The origin of existing British regiments and corps. (A Quar—Jan 1935)

Our artillery racket. (AN&AF Gaz—29 Nov 1934)

British army mechanization. (A&N Jour—29 Dec 1934)

Training

A defence of close order drill: A reply to "Modern Infantry Discipline." (Jour RUSI—Nov 1934)

The training of the Army, 1934. (Jour RUSI—Nov 1934)

Realistic field firing. (Jour USII—Oct 1934)

Indoor T.E.W.T.S. (Jour USII—Oct 1934)

Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)

Some notes on R.A.S.C. company training. (RASC Quar—Nov 1934)

The anti-aircraft exercise of London. (Mil-Woch—25 Sep 1934)

British maneuvers 1934. (Mil-Woch—4 Oct 1934)

The campaign in the Hejaz. (AN&AF Gaz—29 Nov, 6 Dec 1934)

GREAT BRITAIN (NAVY OF)

The Marines at Solebay. (Ftg Forc—Dec 1934)

The protection of England's sea lanes. (Mil-Woch—4 Nov 1934)

Five days with the Navy. (Jour R Art—Jan 1935)

H

v.HINDENBURG, General Field-Marshal Paul v.Beneckendorff (1847-1934)

Address of 2 August 1934 by Reichsarchiv Director. (Ws & Wr—Aug 1934)

HISTORY (MILITARY)

The importance of the study of military history for the military man. (Mil-Woch—4 Oct 1934)

The military expert. (Inf Jour—Nov-Dec 1934)
Military history and general history. (A Quar—Jan 1935)

HISTORY

Ancient

The colonial factor in Roman history. (Es & Naz—Aug-Sep 1934)

Austria-Hungary

Austria since St. Germain. (Mil-Woch—4 Sep 1934)

China

Sea power and the Pacific problem. (Can Def Quar—Jan 1935)

France

The French and ourselves. (Ftg Forc—Dec 1934)

The Saar territory to-day. (Jour RUSI—Nov 1934)

The future of the Saar. (For Pol Rep—2 Jan 1935)

The Saar. (A Quar—Jan 1935)

Germany

Germany's trend toward economic isolation. (For Pol Rep—7 Nov 1934)

The Saar territory to-day. (Jour RUSI—Nov 1934)

The future of the Saar. (For Pol Rep—2 Jan 1935)

German militarism and German socialism. (Ws & Wr—Aug 1934)

The Saar. (A Quar—Jan 1935)

Great Britain

The French and ourselves. (Ftg Forc—Dec 1934)

The Welsh march and the N.-W.F.P. (Jour USII—Oct 1934)

Japan

Sea power and the Pacific problem. (Can Def Quar—Jan 1935)

Will Japan fight? (AN&AF Gaz—29 Nov 1934)

The menace of Japan. [See Section 6.]

Italy

The economic situation in Italy. (For Pol Rep—16, 30 Jan 1935)

Latin America

Latin American policy of the Roosevelt administration. (For Pol Rep—19 Dec 1934)

Prospects in the Caribbean. (MC Gaz—Nov 1934)

Liberia

Liberia, the League and the United States. (For Pol Rep—21 Nov 1934)

United States

Liberia, the League and the United States (For Pol Rep—21 Nov 1934)

Latin American policy of the Roosevelt administration. (For Pol Rep—19 Dec 1934)

Prospects in the Caribbean. (MC Gaz—Nov 1934)

Sea power and the Pacific problem. (Can Def Quar—Jan 1935)

I

INFANTRY

Command and Staff

Saving doughboy lives. Man-power versus matériel in war. (Inf Jour—Nov-Dec 1934)

INT-ITALY

Organization and Equipment

- Organization of new and modern troop divisions. [See Section 2.]
- What an infantry regiment should consist of. (Bul Belge Mil—Jul 1934)
- A consideration of the new French regulations for infantry machine-gun units. (Bul Belge Mil—Sep 1934)
- New thoughts about land warfare. (Riv Art e Gen—Jun 1934)
- New tactics. (Riv Art e Gen—Jul 1934)
- The British experimental brigade. (Mil-Woch—11 Sep 1934)
- CWS in infantry division headquarters. (A&N Jour—1 Dec 1934)

Supply

- Supply of artillery ammunition in an infantry division. (Riv Art e Gen—Jul 1934)

Training Tactics

- Practicable means for improving liaison between the infantry and artillery. (SC Bul—Nov-Dec 1934)
- A defence of close order drill: A reply to "Modern Infantry Discipline." (Jour RUSI—Nov 1934)
- Realistic field firing. (Jour USII—Oct 1934)
- Indoor T.E.W.T.S. (Jour USII—Oct 1934)
- Infantry training at navy yards. (MC Gaz—Nov 1934)
- Hitching the infantry-artillery team for attack. (Cav Jour—Nov-Dec 1934)
- Defensive combat of small infantry units. (Bul Belge Mil—Jul 1934)
- Automotive transportation. (Bul Belge Mil—Aug 1934)
- What should be the scope of the topographical instruction of infantry and cavalry officers? (Rev Ej Mar—Jul 1934)
- A critical study of the siege of Cuautla. (Rev Ej Mar—Aug 1934)
- Infantry defense on large fronts. (Rv d'Inf—Jul, Aug 1934)
- Remarks on automatic rifle practice. (Rv d'Inf—Jul 1934)
- The training of infantry cadres: a study of concrete cases. (Rv d'Inf—Sep 1934)
- The infantry attack during the last 300 yards. (Mil-Woch—4 Oct 1934)
- Saving doughboy lives. Man-power versus materiel in war. (Inf Jour—Nov-Dec 1934)
- Hitching the infantry-artillery team for attack. (Inf Jour—Nov-Dec 1934)
- Notes from the Department of Experiment—The Infantry School. (Inf Jour—Nov-Dec 1934)
- Testing army training schedules. (A&N Reg—3 Nov 1934)

INTELLIGENCE (MILITARY)

- Air reconnaissance in open warfare. (Jour RUSI—Nov 1934)
- Two lectures on the Mesopotamia Campaign. 6th November, 1914, to capture of Kut-al-Amara on 29th September, 1915. (Jour USII—Oct 1934)
- The participation of Moroccan aviation in the intelligence work preparatory to the subjugation of the mountainous groups of Djebel Sagho and the Central Grand Atlas, January to June 1933. (Rv l'Air—Jul 1934)
- Collection of enemy information. Corps G-2. (Rv Mil Fran—Jul 1934)

INTERNATIONAL RELATIONS

- Liberia, the League and the United States. (For Pol Rep—21 Nov 1934)
- The munitions industry. An analysis of the Senate investigation, September 4-21, 1934. (For Pol Rep—5 Dec 1934)

- Latin American policy of the Roosevelt administration. (For Pol Rep—19 Dec 1934)
- Supervision of the trade in arms. (A Ord—Nov-Dec 1934)
- The French and ourselves. (Ftg Forc—Dec 1934)
- The Saar territory to-day. (Jour RUSI—Nov 1934)
- The best system of defence and control of the North-West Frontier of India (from Chitral to the Persian Frontier inclusive), based on the French and British methods of control and administration. (Jour USII—Oct 1934)
- The issue at the next naval conference. (Nav Inst Proc—Dec 1934)
- Prospects in the Caribbean. (MC Gaz—Nov 1934)
- The future of the Saar. (For Pol Rep—2 Jan 1935)
- The economic situation in Italy. (For Pol Rep—30 Jan 1935)
- The international outlook. (Can Def Quar—Jan 1935)
- Sea power and the Pacific problem. (Can Def Quar—Jan 1935)
- The disarmament conferences. (Mil Mitt—Jul 1934)
- Japan's fight for the Pacific. (Mil-Woch—11 Sep 1934)
- War in the making. (Mil-Woch—18 Sep 1934)
- Calais and Dunkirk. (Mil-Woch—4 Oct 1934)
- Is the present situation favorable for a Japanese war? (Mil-Woch—25 Oct 1934)
- The peace of North China. (Inf Jour—Jan-Feb 1935)
- The Saar. (A Quar—Jan 1935)
- World armaments increase. (A&N Reg—3 Nov 1934)
- Navy an emblem of peace. (A&N Reg—10 Nov 1934)

ITALY (ARMY OF)

- Italian Army maneuvers. [See Section 2.]
- Mussolini's address to the officers of the army. (Es e Naz—Aug-Sep 1934)
- Notes on the general maneuvers of August. (Es e Naz—Aug-Sep 1934)
- A new estimate of the battle of Adua. (Es e Naz—Aug-Sep 1934)
- The Royal Macedonian Regiment at the battle of Velletri, 10 August 1744. (Es e Naz—Aug-Sep 1934)
- The general character of the organization of the Italian Army and of Italian basic military preparation. (Rev Ej Mar—Sep 1934)
- Employment of artillery. (Riv Art e Gen—Jun 1934)
- New thoughts about land warfare. (Riv Art e Gen—Jun 1934)
- The Italian maneuvers in August 1934. (Riv Art e Gen—Aug-Sep 1934)
- Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)
- Evolution of the Italian Army, 1929-1934. (Rv Mil Fran—Jul 1934)
- The objective of the Italian Army. (Mil-Woch—4 Sep 1934)
- The Italian maneuvers. (Mil-Woch—18 Oct 1934)
- Military preparedness of a nation. (Mil-Woch—11 Nov 1934)
- The new Italian military law. (Mil-Woch—18 Nov 1934)
- Austria's armed forces and those of her neighbours. (AN&AF Gaz—22 Nov 1934)

ITALY (NAVY OF)

- The new Italian battleships. (Es e Naz—Aug-Sep 1934)
- The Italian naval maneuvers. (Mil-Woch—18 Sep 1934)

JAPAN (ARMY OF)

Motorization and mechanization in the Japanese Army. (Rv d'Art—Jul 1934)
Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug, Sep 1934)
Japan's fight for the Pacific. (Mil-Woch—11 Sep 1934)
Japan as a world power in military aviation. (Mil-Woch—11 Oct 1934)
Is the present situation favorable for a Japanese war? (Mil-Woch—25 Oct 1934)
Will Japan fight? (AN&AF Gaz—29 Nov 1934)

JAPAN (NAVY OF)

The passing of Togo. (Nav Inst Proc—Feb 1935)

JOINT OPERATIONS

Artillery in landing operations. (FA Jour—Nov-Dec 1934)
The principal problems in organizing and conducting joint operations of the Army and Navy. (CA Jour—Nov-Dec 1934)
Mechanization in aid of landing. (Nav Inst Proc—Dec 1934)
Proposed landing operations. (MC Gaz—Nov 1934)
British maneuvers 1934. (Mil-Woch—4 Oct 1934)
Rhodes and morale in coast defense. (CA Jour—Jan-Feb 1935)

LARGE UNITS

Movement of large bodies of troops. (Es e Naz—Aug-Sep 1934)

Army

The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1935)
Lost opportunities. (Rv de Cav—Sep-Oct 1934)
The Fifth Army on 21 August 1914: Charleroi. (Rv d'Inf—Sep 1934)

Corps

Maneuver of fires and compartmenting of terrain. [See Section 2.]
Distant reconnaissance. [See Section 2.]
The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1935)
Lost opportunities. (Rv de Cav—Sep-Oct 1934)
New tactics. (Riv Art e Gen—Jul 1934)
Collection of enemy information. Corps G-2. (Rv Mil Fran—Jul 1934)
French corps maneuvers at Besancon. (Mil-Woch—11 Oct 1934)
Extracts from "The Conduct of War."—VII. Gravelotte. The fight for the Verdun Road. (Jour R Art—Jan 1935)
The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)
German retreat of September 7, 1914. (AN&AF Gaz—3 Jan 1935)

Division

The training of the Army, 1934. (Jour RUSI—Nov 1934)
Organization of new and modern troop divisions. [See Section 2.]
Maneuver of fires and compartmenting of terrain. [See Section 2.]
Distant reconnaissance. [See Section 2.]
The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1935)
Supplies and the division in a withdrawal. (RASC Quar—Nov 1934)

Automotive transportation. (Bul Belge Mil—Aug 1934)
Movement of a division by rail from Puebla to Tapachula. (Rev Ej Mar—Aug 1934)
Infantry defense on large fronts. (Rv d'Inf—Jul, Aug 1934)
The German 14th Division at Saint Gond, 8 September 1914. (Rv d'Inf—Aug 1934)
New tactics. (Riv Art e Gen—Jul 1934)
Water supply for a division. (Riv Art e Gen—Aug-Sep 1934)
Extracts from "The Conduct of War."—VII. Gravelotte. The fight for the Verdun Road. (Jour R Art—Jan 1935)
The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)

LEADERSHIP

An evaluation of the Tactical School. (Nav Inst Proc—Nov 1934)
War à la carte. (MC Gaz—Nov 1934)
La Palabra del Gringo! Leadership of the Nicaraguan National Guard. (Nav Inst Proc—Feb 1935)
The efficiency of an army depends upon the efficiency of its leaders. (Can Def Quar—Jan 1935)
The development of a commander in peace and in war. (Ws & Wr—Sep 1934)
Field Marshal Helmuth v. Moltke's influence on the General Staff considering the World War. (Ws & Wr—Sep 1934)
Schlieffen or Haessler? (Mil-Woch—25 Sep 1934)
War lessons. (Mil-Woch—11, 18 Nov 1934)
Rhodes and morale in coast defense. (CA Jour—Jan-Feb 1935)
America's greatest soldier. (AN&AF Gaz—3 Jan 1935)

LEAGUE OF NATIONS

Liberia, the League and the United States. (For Pol Rep—21 Nov 1934)

LEE, General Robert Edward (1807-1870)

Robert E. Lee. (AN&AF Gaz—8 Nov 1934)
R. E. Lee. [See Section 6.]

LIAISON

Practicable means for improving liaison between the infantry and artillery. (SC Bul—Nov-Dec 1934)
Hitching the infantry-artillery team for attack. (Cav Jour—Nov-Dec 1934)
Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)
Cooperation or subordination. (Pion—Aug 1934)
Considerations concerning the artillery with cavalry. (Rev Ej Mar—Sep 1934)
Hitching the infantry-artillery team for attack. (Inf Jour—Nov-Dec 1934)
Some cavalry actions and tank comparisons. (Jour R Art—Jan 1935)
The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)

LYAUTEY, Marshal Hubert (1854-1934)

Marshal Lyautey. (Rv de Cav—Sep-Oct 1934)

M

MACHINE GUNS

A chronicle of ordnance. (A Ord—Nov-Dec 1934)
What an infantry regiment should consist of. (Bul Belge Mil—Jul 1934)

MAN-MED

History of the Belgian Army in the World War.
—The attack on the machine-gun nest at Craonne Farm in August 1918, by the 1st Battalion, 4th Line Regiment. (Bul Belge Mil—Aug 1934)

The use of machine guns in the defense. (Bul Belge Mil—Aug 1934)

The use of second-echelon machine guns in the defense. (Bul Belge Mil—Aug 1934)

A consideration of the new French regulations for infantry machine-gun units. (Bul Belge Mil—Sep 1934)

Thoughts on the degree of effectiveness of machine-gun fire. (Mil Mitt—Jul 1934)

Long range machine-gun fire. (Rv d'Inf—Sep 1934)

MANEUVERS

The GHQ Command Post Exercise. (QM Rev Nov-Dec 1934)

Italian Army maneuvers. [See Section 2.]
Maneuver of fires and compartmenting of terrain. [See Section 2.]

The cavalry participation in the Third Corps Area maneuvers. (Cav Jour—Nov-Dec 1934)

Notes on the general maneuvers of August. (Es e Naz—Aug-Sep 1934)

The cavalry operations in the High Atlas country, April-August 1933. (Rv de Cav—Sep-Oct 1934)

The Italian maneuvers in August 1934. (Riv Art e Gen—Aug-Sep 1934)

The Italian naval maneuvers. (Mil-Woch—18 Sep 1934)

British maneuvers 1934. (Mil-Woch—4 Oct 1934)

French corps maneuvers at Besancon. (Mil-Woch—11 Oct 1934)

The Italian maneuvers. (Mil-Woch—18 Oct 1934)

The maneuver in Czechoslovakia. (Mil-Woch—4 Nov 1934)

American maneuvers. (Mil-Woch—11 Nov 1934)

MAP PROBLEMS

Maneuver of fires and compartmenting of terrain. [See Section 2.]

Automotive transportation. (Bul Belge Mil—Aug 1934)

The platoon as an outpost. (Bul Belge Mil—Sep 1934)

Several troops of cavalry in a reestablishment of contact. (Es e Naz—Jul 1934)

A field fortification exercise. (Pion—Aug 1934)

A solution to the problem presented to cavalry officers by "Revista del Ejercito y de la Marina." (Rev Ej Mar—Aug 1934)

Infantry defense on large fronts. (Rv d'Inf—Jul, Aug 1934)

Map problem: railroad engineers. The battalion of railroad engineers in the retirement. A solution. (Rv Gen Mil—Sep-Oct 1934)

MARCHES

Two lectures on the Mesopotamia Campaign. 6th November, 1914, to capture of Kut-al-Amara on 29th September, 1915. (Jour USII—Oct 1934)

Field exercises and practice march, 1st Squadron, 3rd Cavalry. (Cav Jour—Nov-Dec 1934)

Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)

The cavalry operations in the High Atlas country, April-August 1933. (Rv de Cav—Sep-Oct 1934)

MARINE CORPS

High quality of our reserve. (Nav Inst Proc—Nov 1934)

Infantry training at navy yards. (MC Gaz—Nov 1934)

The education of a Marine officer. (MC Gaz—Nov 1934)

Bush warfare transportation. (MC Gaz—Nov 1934)

Proposed landing operation. (MC Gaz—Nov 1934)

Money—Unpleasant necessity of U.S. Marine Corps. (MC Gaz—Nov 1934)

MARKSMANSHIP

Instruction and practice in marksmanship. (Rev Ej Mar—Sep 1934)

Modern instruction in rifle marksmanship. (Mil-Woch—4 Oct 1934)

MECHANIZATION

Mechanization in aid of landing. (Nav Inst Proc—Dec 1934)

Organization of new and modern troop divisions. [See Section 2.]

Distant reconnaissance. [See Section 2.]

The development of the compression ignition engine and its possible effect on R.A.S.C. work in war. (RASC Quar—Nov 1934)

Motorization and mechanization in the Japanese Army. (Rv d'Art—Jul 1934)

New thoughts about land warfare. (Riv Art e Gen—Jun 1934)

French observations concerning the professional army. Demand for a motorized and mechanized army. (Sanct Chris—Jul 1934)

Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug, Sep 1934)

Motorization and its effect on the conduct of war. (Wr & Wf—Jul, Aug 1934)

Concentration 1914 and today. (Mil-Woch—11 Oct 1934)

Problems of the future. Regular Army of France. (Mil-Woch—25 Oct 1934)

Entrance of motorized units at the decisive moment. (Mil-Woch—4 Nov 1934)

Some service applications of the high speed Diesel engine. (Roy Eng Jour—Dec 1934)

Mechanization, terrain and reconnaissance. (Inf Jour—Jan-Feb 1935)

The new arm. (Inf Jour—Jan-Feb 1935)

"What effect are modern developments in aviation, armoured and mechanical vehicles, and automatic weapons likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)

Expand Ft. Knox mechanization. (A&N Jour—1 Dec 1934)

British army mechanization. (A&N Jour—29 Dec 1934)

MEDICAL SERVICE

The sterilization of instruments in the field. (Mil Surg—Dec 1934)

Recent developments in medical field equipment and transport at the Medical Department Equipment Laboratory, U.S. Army. (Mil Surg—Jan 1935)

An analysis of physical examinations for the C.C.C. at Richmond, Virginia, October 1 to 15, 1934. (Mil Surg—Feb 1935)

The United States Government Medical Services. (Mil Surg—Feb 1935)

The organization and operation of a motor ambulance convoy. (RASC Quar—Nov 1934)

Logistics of the Medical Service. (Es e Naz—Aug-Sep 1934)

Notes upon physical aptitude for flying duty. (Rv l'Air—Jul 1934)

Fatigues peculiar to aviation. (Rv l'Air—Sep 1934)

MEXICO (ARMY OF)

It is proper that the program of instruction of the General Staff School and of the Course for General Officers be in harmony with the functional organization of the army. (Rev Ej Mar—Jul 1934)
The importance of a study of subsistence in the Quartermaster School. (Rev Ej Mar—Jul 1934)
Movement of a division by rail from Puebla to Tapachula. (Rev Ej Mar—Jul 1934)
A solution to the problem presented to cavalry officers by "Revista del Ejército y de la Marina." (Rev Ej Mar—Aug 1934)
Command and Staff. (Rev Ej Mar—Sep 1934)

MEXICO (NAVY OF)

The professional knowledge of the naval officer. (Rev Ej Mar—Jul 1934)

MINES

Explosives for mining operations. (Es e Naz—Aug-Sep 1934)

MOBILIZATION

Industrial Mobilization

How industry armed for defense. (A Ord—Nov-Dec 1934)
Industrial mobilization. (SC Bul—Nov-Dec 1934)
The application of modern industrial methods to R.A.S.C. organization in war. (RASC Quar—Nov 1934)
Industrial mobilization. (Rev Ej Mar—Jul 1934)
Mobilization training. (A&N Reg—19 Jan 1935)
Mobilization training. (A&N Jour—19 Jan 1935)

MOBILITY

The German military doctrine. [See Section 2.]
The signpost that was missed. (Inf Jour—Nov-Dec 1934)
Mechanization, terrain and reconnaissance. (Inf Jour—Jan-Feb 1935)
A study of mobility in the American Civil War. (A Quar—Jan 1935)

v. MOLTKE, Count Helmuth J. Ludwig (1848-1916)

Field Marshal Helmuth v. Moltke's influence on the General Staff considering the World War. (Ws & Wr—Sep 1934)

MORALE

Rhodes and morale in coast defense. (CA Jour—Jan-Feb 1935)

MOTORIZATION

Organization of new and modern troop divisions. [See Section 2.]
Distant reconnaissance. [See Section 2.]
Field exercises and practice march, 1st Squadron, 3rd Cavalry. (Cav Jour—Nov-Dec 1934)
The development of the compression ignition engine and its possible effect on R.A.S.C. work in war. (RASC Quar—Nov 1934)
The organization and operation of a motor ambulance convoy. (RASC Quar—Nov 1934)
Survey of the German cavalry. (Bul Belge Mil—Jul 1934)
Automotive transportation. (Bul Belge Mil—Aug 1934)
Essay on security. (Rv de Cav—Sep-Oct 1934)
The cavalry operations in the High Atlas country, April-August 1933. (Rv de Cav—Sep-Oct 1934)

Motorization and mechanization in the Japanese Army. (Rv d'Art—Jul 1934)
New thoughts about land warfare. (Riv Art e Gen—Jun 1934)

Motorization in foreign armies. (Sanct Chris—Jul 1934)

French observations concerning the professional army. Demand for a motorized and mechanized army. (Sanct Chris—Jul 1934)

Motorization of farm implements. (Sanct Chris—Jul 1934)

Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug, Sep 1934)

Thoughts on the motorization of the supply trains of combat troops. (Sanct Chris—Sep 1934)

Motorization and its effect on the conduct of war. (Wr & Wf—Jul, Aug 1934)

Cavalry or motorization problem. (Mil-Woch—4 Sep 1934)

Problems of the future. Regular Army of France. (Mil-Woch—25 Oct 1934)

Entrance of motorized units at the decisive moment. (Mil-Woch—4 Nov 1934)

Field artillery motor maintenance. (FA Jour—Jan-Feb 1935)

Motors in reconnaissance and security. (Inf Jour—Nov-Dec 1934)

The new arm. (Inf Jour—Jan-Feb 1935)

"What effect are modern developments in aviation, armoured and mechanical vehicles, and automatic weapons, likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)

N

NAPOLEON I, Emperor of the French (1769-1821)

Napoleon self-revealed. [See Section 6.]

NATIONAL DEFENSE

How industry armed for defense. (A Ord—Nov-Dec 1934)

The great pacifist hoax. (A Ord—Nov-Dec 1934)
Extracts from an address delivered by Major General William F. Hase. (CA Jour—Nov-Dec 1934)

The fortification of the French and Belgian frontiers. (Jour RUSI—Nov 1934)

Some problems of a technical service. (Jour RUSI—Nov 1934)

The future of India's defence. (Jour RUSI—Nov 1934)

The best system of defence and control of the North-West Frontier of India (from Chitral to the Persian Frontier inclusive), based on the French and British methods of control and administration. (Jour USII—Oct 1934)

The Welsh march and the N.-W.F.P. (Jour USII—Oct 1934)

Canada and Imperial Defence. (Can Def Quar—Jan 1935)

Comparison of French and German defence methods. (Bul Belge Mil—Jul 1934)

The new line of French fortifications. (Es e Naz—Jul 1934)

Questions of sea power are questions of world power. (Mil Mitt—Aug 1934)

The general character of the organization of the Italian Army and of Italian basic military preparation. (Rev Ej Mar—Sep 1934)

French observations concerning the professional army. Demand for a motorized and mechanized army. (Sanct Chris—Jul 1934)

Antiaircraft defense in a nation armed without restriction. (Wr & Wf—Jul 1934)

Concerning the necessity for a doctrine of war. (Ws & Wr—Sep 1934)

Military preparedness of a nation. (Mil-Woch—11 Nov 1934)

NAV-QUAR

Are soldiers militarists? (CA Jour—Jan-Feb 1935)
Reserve policies and national defense. (CA Jour—Jan-Feb 1935)
World armaments increase. (A&N Reg—3 Nov 1934)
Navy an emblem of peace. (A&N Reg—10 Nov 1934)
Denounces radicals. (A&N Reg—17 Nov 1934)
What national defense means. (A&N Reg—1 Dec 1934)
Military training upheld. (A&N Reg—8 Dec 1934)
Nationalizing munitions plants. (A&N Reg—29 Dec 1934)
The dangerous enemy of peace. (A&N Reg—19 Jan 1935)
Upholds military training. (A&N Jour—8 Dec 1934)
New Congress facing problems of defense. (A&N Jour—5 Jan 1935)
Danger of arms nationalization. (A&N Jour—5 Jan 1935)
Estimates for defense show marked increase. (A&N Jour—12 Jan 1935)

NAVAL WARFARE

Air bombardment regulation. (Nav Inst Proc—Nov 1934)
The issue at the next naval conference. (Nav Inst Proc—Dec 1934)
Mistaken attacks in the World War. (Nav Inst Proc—Dec 1934)
Mechanization in aid of landing. (Nav Inst Proc—Dec 1934)
The airplane on board the submarine. (Nav Inst Proc—Jan 1935)
Naval warfare in miniature. (Nav Inst Proc—Jan 1935)
D'Eslaign's fleet revealed. (Nav Inst Proc—Feb 1935)
Failure at Gallipoli. (Nav Inst Proc—Feb 1935)
Sea power and the Pacific problem. (Can Def Quar—Jan 1935)
The influence of sea power on the World War. (Mil Mitt—Jul 1934)
Questions of sea power are questions of world power. (Mil Mitt—Aug 1934)
Sea power in history. (Mil-Woch—25 Nov 1934)

NAVIGATION

Accuracy in aerial dead reckoning. (Nav Inst Proc—Nov 1934)
The American contribution to celestial navigation as applied to aviation. (Rv l'Air—Jul 1934)

NICARAGUA (ARMY OF)

La Palabra del Gringo! Leadership of the Nicaraguan National Guard. (Nav Inst Proc—Feb 1935)

OBSTACLES

Defense against armored vehicles. (Rv de Cav—Sep-Oct 1934)

ORDNANCE

A chronicle of ordnance. (A Ord—Nov-Dec 1934)
Supervision of the trade in arms. (A Ord—Nov-Dec 1934)
Facts about munitions makers. (A Ord—Nov-Dec 1934)
Smoke. (Jour USII—Oct 1934)
Stopping power. (Mil Surg—Feb 1935)
Ballistic calculations. (Riv Art e Gen—Aug-Sep 1934)

Nationalizing munitions plants. (A&N Reg—29 Dec 1934)
Army munitions views. (A&N Jour—29 Dec 1934)
Danger of arms nationalization. (A&N Jour—5 Jan 1935)

P

PACIFISM

The great pacifist hoax. (A Ord—Nov-Dec 1934)

PARAGUAY (ARMY OF)

Equipment and clothing in the Chaco War. (Mil-Woch—4 Nov 1934)

PHOTOGRAPHY

Aerial

Aerial photography and photogrammetry. (Rv l'Air—Aug 1934)
Employment and application of aerial photography. (Mil-Woch—18 Oct 1934)
Naval aerial photography. (A&N Reg—17 Nov 1934)

POLAND (ARMY OF)

Poland's organization for war. (Es e Naz—Aug-Sep 1934)
Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)

PRINCIPLES OF WAR

The importance of the study of military history for the military man. (Mil-Woch—4 Oct 1934)
An outline of the principles of war. [See Section 6.]

PROJECTILES

Evolution of projectiles. (Rev Ej Mar—Jul 1934)
Departure errors of a projectile due to the motion of a ship. (Wr & Wl—Sep 1934)

PURSUIT

Modern cavalry: Missions of army cavalry. (Cav Jour—Nov-Dec 1934)
Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)

Q

QUARTERMASTER SERVICE

The GHQ Command Post Exercise. (QM Rev—Nov-Dec 1934)
Tonnage—What is it? (QM Rev—Nov-Dec 1934)
Supply at the Dardanelles. (QM Rev—Nov-Dec 1934)
The effect of chemical warfare agents on quartermaster supplies. (QM Rev—Nov-Dec 1934)
The Quartermaster storehouse of knowledge. (QM Rev—Nov-Dec 1934)
Some notes on R.A.S.C. company training. (RASC Quar—Nov 1934)
The development of the compression ignition engine and its possible effect on R.A.S.C. work in war. (RASC Quar—Nov 1934)
The organization and operation of a motor ambulance convoy. (RASC Quar—Nov 1934)
Supplies and the division in a withdrawal. (RASC Quar—Nov 1934)
The application of modern industrial methods to R.A.S.C. organization in war. (RASC Quar—Nov 1934)

Some recent developments in field baking. (RASC Quar—Nov 1934)
The importance of a study of subsistence in the Quartermaster School. (Rev EJ Mar—Jul 1934)
Quartermaster mobilization. (A&N Reg—1 Dec 1934)

R

RAIDS

The Welsh march and the N.-W.F.P. (Jour USII—Oct 1934)
The employment of gas and chemicals in air raids on cities and industrial districts. (Ws & Wr—Jul 1934)

REVOLUTIONS

The coming American Revolution. [See Section 6.]

RIVER CROSSINGS

Lessons from the Marne. (Ftg Forc—Dec 1934)
How wide rivers are crossed. (Bul Belge Mil—Jul 1934)
History of the Belgian Army in the World War.—The battle of Budingen, 18 August 1914. (Bul Belge Mil—Sep 1934)
The crossing of the San in May 1915. (Mil Mitt—Sep 1934)
Swamp crossings. (Pion—Aug 1934)

ROUTES COMMUNICATIONS

Chinese lines of communication and their effect on strategy. (Nav Inst Proc—Nov 1934)

Bridges Bridging

History of the Belgian Army in the World War.—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)
Swamp crossings. (Pion—Aug 1934)
Military communications. Suspension bridges with sectionalized cables. (Rev EJ Mar—Sep 1934)
A bridging exercise. (Roy Eng Jour—Dec 1934)

Highways Military Roads

Employment of engineers in the operations in Morocco in 1933. (Rv Gen Mil—Sep-Oct 1934)
The national highway traffic regulations. (Sanct Chris—Jul 1934)
Temporary roads department. VI. Odds and ends. (Roy Eng Jour—Dec 1934)
Modern roadmaking and the needs of the army in the field. (A Quar—Jan 1935)

Railways

Military importance of railways. (Rev EJ Mar—Jul 1934)
Movement of a division by rail from Puebla to Tapachula. (Rev EJ Mar—Aug 1934)
Map problem: railroad engineers. The battalion of railroad engineers in the retirement. A solution. (Rv Gen Mil—Sep-Oct 1934)
The use of railways. (Riv Art e Gen—Jun 1934)

RUMANIA (ARMY OF)

Rumania in the World War (1916-1919). [See Section 6.]

RUSSIA (ARMY OF)

Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)
The battle of Galicia, 1914. (Rv Mil Fran—Aug, Sep 1934)

The people of the Soviet Union and the Red Army. (Mil-Woch—18 Sep 1934)
The Red Army. (Mil-Woch—18 Oct 1934)
Is the present situation favorable for a Japanese war? (Mil-Woch—25 Oct 1934)
Military operations in Daghestan, 1917-1921. (A Quar—Jan 1935)

RUSSIA (NAVY OF)

The navy of the Soviet Union. (Mil-Woch—11 Sep 1934)

S

SAAR Valley

The future of the Saar. (For Pol Rep—2 Jan 1935)
The Saar territory to-day. (Jour RUSI—Nov 1934)
The Saar. (A Quar—Jan 1935)

SCHLIEFFEN, Count Alfred von (1833-1913)

Schlieffen in the Pantheon of great captains. (Rv d'Art—Aug 1934)

SCIPIO AFRICANUS, Roman general (237-183 B.C.)

The battle of Zama. (Rv Mil Fran—Sep 1934)

SECURITY

The security of supply. (Jour RUSI—Nov 1934)
Artillery in rear guard action. [See Section 2.]
Essay on security. (Rv de Cav—Sep-Oct 1934)
The cavalry operations in the High Atlas country, April-August 1933. (Rv de Cav—Sep-Oct 1934)
Motors in reconnaissance and security. (Inf Jour—Nov-Dec 1934)
Tanks and flanks. (A Quar—Jan 1935)

SIGNAL SERVICE

Is the telegraph being utilized sufficiently by the division and lower units? (SC Bul—Nov-Dec 1934)
The contribution of the Cryptographic Bureaus in the World War. (SC Bul—Nov-Dec 1934)
A new apparatus for telephony by means of light. (Rv Gen Mil—Sep-Oct 1934)
The problem of signal communication in large mobile units. (Riv Art e Gen—Jul 1934)
Improvements of the methods of communication between ground stations and aircraft in flight. (Rv l'Air—Jul 1934)
A new panorama camera. (Wr & Wf—Jul 1934)

SPAIN (ARMY OF)

Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)

SUPPLY

Influence of industrial production on military operations. (FA Jour—Nov-Dec 1934)
Supply at the Dardanelles. (QM Rev—Nov-Dec 1934)
The effect of chemical warfare agents on quartermaster supplies. (QM Rev—Nov-Dec 1934)
The security of supply. (Jour RUSI—Nov 1934)
Tactical employment of light tanks with the Army in India. (Cav Jour [GBI—Jan 1935)
Strategic mineral supplies. 3. Nickel. (Mil Eng—Jan-Feb 1935)
Joint navy and army procurement. (Nav Inst Proc—Jan 1935)
The development of the compression ignition engine and its possible effect on R.A.S.C. work in war. (RASC Quar—Nov 1934)

SUR-TAC

Supplies and the division in a withdrawal. (RASC Quar—Nov 1934)
The application of modern industrial methods to R.A.S.C. organization in war. (RASC Quar—Nov 1934)
Agrarian economy and supply in war. (Es e Naz—Jul 1934)
The service of supply and evacuation in a cyclist battalion. (Es e Naz—Aug-Sep 1934)
The importance of a study of subsistence in the Quartermaster School. (Rev Ej Mar—Jul 1934)
Supply of artillery ammunition in an infantry division. (Riv Art e Gen—Jul 1934)
Water supply for a division. (Riv Art e Gen—Aug-Sep 1934)
Thoughts on the motorization of the supply trains of combat troops. (Sanct Chris—Sep 1934)
War and supplies. (Mil-Woch—18 Nov 1934)

SURPRISE

Distant reconnaissance. [See Section 2.]
Concentration 1914 and today. (Mil-Woch—11 Oct 1934)

T

TACTICS OPERATIONS

General Topics

The German military doctrine. [See Section 2.]
New tactics. (Riv Art e Gen—Jul 1934)
A study of mobility in the American Civil War. (A Quar—Jan 1935)

Defensive Combat

The future of India's defence. (Jour RUSI—Nov 1934)
The best system of defence and control of the North-West Frontier of India (from Chitral to the Persian Frontier inclusive), based on the French and British methods of control and administration. (Jour USII—Oct 1934)
The Welsh march and the N.-W.F.P. (Jour USII—Oct 1934)
The German military doctrine. [See Section 2.]
Artillery in rear guard action. [See Section 2.]
Maneuver of fires and compartmenting of terrain. [See Section 2.]
Distant reconnaissance. [See Section 2.]
Modern cavalry: Missions of army cavalry. (Cav Jour—Nov-Dec 1934)
Supplies and the division in a withdrawal. (RASC Quar—Nov 1934)
History of the Belgian Army in the World War.—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)
Defensive combat of small infantry units. (Bul Belge Mil—Jul 1934)
Comparison of French and German defense methods. (Bul Belge Mil—Jul 1934)
The use of machine guns in the defense. (Bul Belge Mil—Aug 1934)
The use of second-echelon machine guns in the defense. (Bul Belge Mil—Aug 1934)
The determination of the degree of defile. (Bul Belge Mil—Aug 1934)
The main line of resistance of a defensive position. (Es e Naz—Aug-Sep 1934)
Organization of the terrain. (Pion—Aug 1934)
Infantry defense on large fronts. (Rv d'Inf—Jul, Aug 1934)
The defense of the Chateau-Thierry bridges, 2 September 1914. (Rv d'Inf—Jul 1934)
A study of flanking actions. (Rv d'Inf—Aug 1934)
Map problem: railroad engineers. The battalion of railroad engineers in the retirement. A solution. (Rv Gen Mil—Sep-Oct 1934)

How did the Marne withdrawal of 1914 affect the French troops? (Mil-Woch—11 Oct 1934)
Hitching the infantry-artillery team for attack. (Inf Jour—Nov-Dec 1934)
Tested by war. (Inf Jour—Jan-Feb 1935)
"The other side of the hill." No. XIV. The fight for Inverness Cope: 22nd-24th of August, 1917. (A Quar—Jan 1935)
Tanks and flanks. (A Quar—Jan 1935)
German retreat of September 7, 1914. (AN&AF Gaz—3 Jan 1935)

Offensive Combat

Modern air reconnaissance: The importance of unity of command. (Jour RUSI—Nov 1934)
Two lectures on the Mesopotamia Campaign. 6th November, 1914, to capture of Kut-al-Amara on 29th September, 1915. (Jour USII—Oct 1934)
Heavy mobile artillery in base defense. (MC Gaz—Nov 1934)
The German military doctrine. [See Section 2.]
Maneuver of fires and compartmenting of terrain. [See Section 2.]
Distant reconnaissance. [See Section 2.]
Modern cavalry: Missions of army cavalry. (Cav Jour—Nov-Dec 1934)
Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)
Mustard gas, an offensive agent of war. (Es e Naz—Jul 1934)
Defense against armored vehicles. (Rv de Cav—Sep-Oct 1934)
A study in flanking actions. (Rv d'Inf—Aug 1934)
The last 200 yards in the attack. A question of armament and organization. (Mil-Woch—4 Sep 1934)
The infantry attack during the last 300 yards. (Mil-Woch—4 Oct 1934)
Hitching the infantry-artillery team for attack. (Inf Jour—Nov-Dec 1934)
Tested by war. (Inf Jour—Jan-Feb 1935)
The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)
Military operations in Daghestan, 1917-1921. (A Quar—Jan 1935)

Reconnaissance

Lessons from the Marne. (Ftg Forc—Dec 1934)
Air reconnaissance in open warfare. (Jour RUSI—Nov 1934)
Modern air reconnaissance: The importance of unity of command. (Jour RUSI—Nov 1934)
Distant reconnaissance. [See Section 2.]
Modern cavalry: Missions of army cavalry. (Cav Jour—Nov-Dec 1934)
Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)
Several troops of cavalry in a reestablishment of contact. (Es e Naz—Jul 1934)
Division reconnaissance detachments in close-in reconnaissance. (Es e Naz—Aug-Sep 1934)
Air reconnaissance and ground strategy. (Mil Mitt—Jul 1934)
The participation of Moroccan aviation in the intelligence work preparatory to the subjugation of the mountainous groups of Djebel Sagho and the Central Grant Atlas, January to June 1933. (Rv l'Air—Jul 1934)
Concentration 1914 and today. (Mil-Woch—11 Oct 1934)
Motors in reconnaissance and security. (Inf Jour—Nov-Dec 1934)
Mechanization, terrain and reconnaissance. (Inf Jour—Jan-Feb 1935)

Special Warfare

Tanks in the Gran Chaco. (A Ord—Nov-Dec 1934)

Bush warfare transportation. (MC Gaz—Nov 1934)
 Maneuver of fires and compartmenting of terrain. [See Section 2.]
 Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)
 The best system of defence and control of the North-West Frontier of India (from Chitral to the Persian Frontier inclusive), based on the French and British methods of control and administration. (Jour USII—Oct 1934)
 A model Moroccan operation. (Nav Inst Proc—Feb 1935)
 The crossing of the San in May 1915. (Mil Mitt—Sep 1934)
 The cavalry operations in the High Atlas country, April-August 1933. (Rv de Cav—Sep-Oct 1934)
 Employment of engineers in the operations in Morocco in 1933. (Rv Gen Mil—Sep-Oct 1934)
 The last phase of the Moroccan pacification. (Rv Mil Fran—Aug, Sep 1934)
 Military operations in Daghestan, 1917-1921. (A Quar—Jan 1935)

Troop Movements

Automotive transportation. (Bul Belge Mil—Aug 1934)
 Movement of large bodies of troops. (Es e Naz—Aug-Sep 1934)
 Movement of a division by rail from Puebla to Tapachula. (Rev Ej Mar—Aug 1934)

TANKS

Tanks in the Gran Chaco. (A Ord—Nov-Dec 1934)
 Passchendaele. (Ftg Forc—Dec 1934)
 Mechanization in aid of landing. (Nav Inst Proc—Dec 1934)
 Tanks and antitank weapons. [See Section 2.]
 Organization of new and modern troop divisions. [See Section 2.]
 With the tanks at Passchendaele. (Roy Tk C Jour—Dec 1934)
 Tactical employment of light tanks with the Army in India. (Cav Jour [GB]—Jan 1935)
 Defense against armored vehicles. (Rv de Cav—Sep-Oct 1934)
 New thoughts about land warfare. (Riv Art e Gen—Jun 1934)
 Latest light tanks in foreign armies. (Sanct Chris—Aug 1934)
 Amphibian tanks in foreign armies and their future employment. (Sanct Chris—Aug 1934)
 Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug, Sep 1934)
 Motorization and its effect on the conduct of war. (Wr & Wl—Jul, Aug 1934)
 The employment of cavalry after a successful breakthrough by tanks. (Mil-Woch—11 Sep 1934)
 British maneuvers 1934. (Mil-Woch—4 Oct 1934)
 Problems of the future. Regular Army of France. (Mil-Woch—25 Oct 1934)
 Tank platoon tactics. (Inf Jour—Nov-Dec 1934)
 Notes from the Department of Experiment—The Infantry School. (Inf Jour—Nov-Dec 1934)
 The battle of Villers-Cotterets. (Inf Jour—Jan-Feb 1935)
 Voltaire's tank. (Inf Jour—Jan-Feb 1935)
 The new arm. (Inf Jour—Jan-Feb 1935)
 "What effect are modern developments in aviation, armored and mechanical vehicles, and automatic weapons, likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)
 Some cavalry actions and tank comparisons. (Jour R Art—Jan 1935)

The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)
 Tanks and tanks. (A Quar—Jan 1935)
 New army tank. (A&N Reg—24 Nov 1934)
 Show new army tank. (A&N Jour—24 Nov 1934)
 Tank warfare. [See Section 6.]

TERRAIN

Maneuver of fires and compartmenting of terrain. [See Section 2.]
 Organization of the terrain. (Pion—Aug 1934)
 A critical study of the siege of Cuautla. (Rev Ej Mar—Aug 1934)
 The cavalry operations in the High Atlas country, April-August 1933. (Rv de Cav—Sep-Oct 1934)
 Appreciation of terrain. (Rv Mil Fran—Aug, Sep 1934)
 Mechanization, terrain and reconnaissance. (Inf Jour—Jan-Feb 1935)

TOGO, Admiral Heihachiro (1847-1934)

The passing of Togo. (Nav Inst Proc—Feb 1935)

TOPOGRAPHY SURVEYING

What should be the scope of the topographical instruction of infantry and cavalry officers? (Rev Ej Mar—Jul 1934)

Maps Mapping

The French system of maps. (Es e Naz—Aug-Sep 1934)
 A study of the topographical organization of observation. (Rv d'Inf—Aug 1934)

TRANSPORTATION

The GHQ Command Post Exercise. (QM Rev—Nov-Dec 1934)
 Bush warfare transportation. (MC Gaz—Nov 1934)
 Some notes on R.A.S.C. company training. (RASC Quar—Nov 1934)
 The development of the compression ignition engine and its possible effect on R.A.S.C. work in war. (RASC Quar—Nov 1934)
 The organization and operation of a motor ambulance convoy. (RASC Quar—Nov 1934)
 Supplies and the division in a withdrawal. (RASC Quar—Nov 1934)
 The application of modern industrial methods to R.A.S.C. organization in war. (RASC Quar—Nov 1934)
 Automotive transportation. (Bul Belge Mil—Aug 1934)
 Military importance of railways. (Rev Ej Mar—Jul 1934)
 Movement of a division by rail from Puebla to Tapachula. (Rev Ej Mar—Jul 1934)
 Movements by motor. (Rev Ej Mar—Sep 1934)
 The use of railways. (Riv Art e Gen—Jun 1934)
 Motorization and its effect on the conduct of war. (Wr & Wl—Jul, Aug 1934)
 A CPX truck. (CA Jour—Jan-Feb 1935)

U

UNITED STATES (ARMY OF)

Command and Staff

How industry armed for defense. (A Ord—Nov-Dec 1934)
 Duties of an Adjutant. (CA Jour—Nov-Dec 1934)
 Will Captain John Hump get to Leavenworth? (Inf Jour—Nov-Dec 1934)
 A suggestion system of the Army. (Inf Jour—Nov-Dec 1934)

US-WAR

A study of war-time rank. (Inf Jour—Jan-Feb 1935)
 Adjusted service certificates. (A&N Reg—24 Nov 1934)
 Age-in-grade Reserve Officers. (A&N Reg—1 Dec 1934)
 The Chief of Staff. (A&N Reg—15 Dec 1934)
 Report of Secretary of War. (A&N Reg—22 Dec 1934)
 General MacArthur's annual report. (A&N Reg—29 Dec 1934)
 War Department investigation. (A&N Reg—5 Jan 1935)
 Pay restoration opposed. (A&N Reg—12 Jan 1935)
 Army-Navy budget estimates. (A&N Reg—12 Jan 1935)
 Temporary Army expansion proposed. (A&N Reg—19 Jan 1935)
 Army promotion plan. (A&N Reg—26 Jan 1935)
 Pay restoration seen—urge longevity return. (A&N Jour—3 Nov 1934)
 Longevity pay return likely in 1936 budget. (A&N Jour—10 Nov 1934)
 Army paper work cut by condensed manual. (A&N Jour—24 Nov 1934)
 Administration explains widows' pension laws. (A&N Jour—1 Dec 1934)
 Pension for widows. (A&N Jour—15 Dec 1934)
 Training Board reports; shorten C. & G.S. course. (A&N Jour—22 Dec 1934)
 Secretary Dern's report. (A&N Jour—22 Dec 1934)
 Congress gets report on army investigation. (A&N Jour—29 Dec 1934)
 Army munition views. (A&N Jour—29 Dec 1934)
 Flight pay recommendations. (A&N Jour—5 Jan 1935)
 Service pay restoration. (A&N Jour—12 Jan 1935)
 Estimates for defense show marked increase. (A&N Jour—12 Jan 1935)
 Explain Army budget. (A&N Jour—12 Jan 1935)
 Army revises policies governing air officers. (A&N Jour—19 Jan 1935)
 Army air mail cost. (A&N Jour—19 Jan 1935)
 White House approves Army promotion bill. (A&N Jour—26 Jan 1935)

Organization and Equipment

The increase of the British and American air corps. (Mil-Woch—4 Sep 1934)
 Reserve policies and national defense. (CA Jour—Jan-Feb 1935)
 Denounces radicals. (A&N Reg—17 Nov 1934)
 Age-in-grade Reserve Officers. (A&N Reg—1 Dec 1934)
 Quartermaster mobilization. (A&N Reg—1 Dec 1934)
 Military training upheld. (A&N Reg—8 Dec 1934)
 Temporary Army expansion proposed. (A&N Reg—19 Jan 1935)
 Upholds military training. (A&N Jour—8 Dec 1934)
 Army increase urged by General MacArthur. (A&N Jour—29 Dec 1934)
 Plan cadet increase to strengthen Army. (A&N Jour—26 Jan 1935)
 National Guard increase. (A&N Jour—26 Jan 1935)

Training

The GHQ Command Post Exercise. (QM Rev—Nov-Dec 1934)
 Address of Secretary Dern. (CA Jour—Nov-Dec 1934)
 An evaluation of the Tactical School. (Nav Inst Proc—Nov 1934)
 American maneuvers. (Mil-Woch—11 Nov 1934)

Doubling the efficiency of the C.A. Reserve. (CA Jour—Jan-Feb 1935)
 Summary of reports on the joint antiaircraft-air corps exercises held at Fort Knox. (CA Jour—Jan-Feb 1935)
 Reserve policies and national defense. (CA Jour—Jan-Feb 1935)
 Testing army training schedules. (A&N Reg—3 Nov 1934)
 The Army War College. (A&N Reg—8 Dec 1934)
 Army training methods. (A&N Reg—22 Dec 1934)
 Mobilization training. (A&N Reg—19 Jan 1935)
 Army paper work cut by condensed manual. (A&N Jour—24 Nov 1934)
 Army War College policy. (A&N Jour—8 Dec 1934)
 Upholds military training. (A&N Jour—8 Dec 1934)
 Training Board reports; shorten C. & G.S. course. (A&N Jour—22 Dec 1934)
 Mobilization training. (A&N Jour—19 Jan 1935)

UNITED STATES (NAVY OF)

Command and Staff

Navy an emblem of peace. (A&N Reg—10 Nov 1934)
 Secretary of Navy's report. (A&N Reg—8 Dec 1934)
 Navy annual reports. (A&N Reg—15 Dec 1934)
 Chief of Bureau of Navigation. (A&N Reg—5 Jan 1935)
 Army-Navy budget estimates. (A&N Reg—12 Jan 1935)
 Estimates for defense show marked increase. (A&N Jour—12 Jan 1935)

Organization and Equipment

High quality of our reserve. (Nav Inst Proc—Nov 1934)
 Diesel-driven surface craft. (Nav Inst Proc—Nov 1934)
 Navy skyhooks. (Nav Inst Proc—Feb 1935)
 Navy building program. (A&N Reg—26 Jan 1935)
 More naval air bases and dirigibles sought. (A&N Jour—17 Nov 1934)

Training

An evaluation of the Tactical School. (Nav Inst Proc—Nov 1934)
 Accuracy in aerial dead reckoning. (Nav Inst Proc—Nov 1934)
 Mistaken attacks in the World War. (Nav Inst Proc—Dec 1934)
 Naval warfare in miniature. (Nav Inst Proc—Jan 1935)
 D'Estaing's fleet revealed. (Nav Inst Proc—Feb 1935)
 Aërology and the Hawaiian flight. (Nav Inst Proc—Feb 1935)
 Graphic interpolation in azimuth tables. (Nav Inst Proc—Feb 1935)
 Naval aerial photography. (A&N Reg—17 Nov 1934)
 Navy views universal aviation training plan. (A&N Jour—1 Dec 1934)

W

WAR PEACE

The munitions industry. An analysis of the Senate investigation, September 4-21, 1934. (For Pol Rep—5 Dec 1934)
 The application of modern industrial methods to R.A.S.C. organization in war. (RASC Quar—Nov 1934)
 The international outlook. (Can Def Quar—Jan 1935)

The causes of war. (Can Def Quar—Jan 1935)
 Agrarian economy and supply in war. (Es e Naz—Jul 1934)
 German militarism and German socialism. (Ws & Wr—Aug 1934)
 War in the making. (Mil-Woch—18 Sep 1934)
 War and industry. (Mil-Woch—18 Oct 1934)
 Coal or oil? (Mil-Woch—18 Oct 1934)
 Military preparedness of a nation. (Mil-Woch—11 Nov 1934)
 War and supplies. (Mil-Woch—18 Nov 1934)
 Danger of arms nationalization. (A&N Jour—5 Jan 1935)
 Are soldiers militarists? (CA Jour—Jan-Feb 1935)
 Saving doughboy lives. Man-power versus matériel in war. (Inf Jour—Nov-Dec 1934)
 Tested by war. (Inf Jour—Jan-Feb 1935)
 The peace of North China. (Inf Jour—Jan-Feb 1935)
 The root of war. (AN&AF Gaz—1 Nov 1934)
 Navy an emblem of peace. (A&N Reg—10 Nov 1934)
 What national defense means. (A&N Reg—1 Dec 1934)
 Nationalizing munition plants. (A&N Reg—29 Dec 1934)
 The dangerous enemy of peace. (A&N Reg—19 Jan 1935)

WARS

ANCIENT

WARS OF ALEXANDER THE GREAT (362-323 B.C.)

Rhodes and morale in coast defense. (CA Jour—Jan-Feb 1935)

PUNIC WARS (264-146 B.C.)

The battle of Zama. (Rv Mil Fran—Sep 1934)

AFRICA

ITALO-ABYSSINIAN CAMPAIGN (1896)

A new estimate of the battle of Adua. (Es e Naz—Aug-Sep 1934)

MOROCCO

Campaigns (1919-)

A model Moroccan operation. (Nav Inst Proc—Feb 1935)

The participation of Moroccan aviation in the intelligence work preparatory to the subjugation of the mountainous groups of Djebel Sagho and the Central Grand Atlas, January to June 1933. (Rv l'Air—Jul 1934)

Employment of engineers in the operations in Morocco in 1933. (Rv Gen Mil—Sep-Oct 1934)

The last phase of the Moroccan pacification. (Rv Mil Fran—Aug, Sep 1934)

ASIA

INDIA

Sepoy Rebellion [Indian Mutiny] (1857-1858)

A dark and fateful Sunday. (Meerut. May 10th, 1857.) (Jour R Art—Jan 1935)

JAPAN-CHINA (1931-1933)

Recent operations in Manchukuo. (Jour RUSI—Nov 1934)

16th CENTURY EUROPE

The Duke of Alva. A sixteenth century portrait. (Rv d'Art—Jul 1934)

17th CENTURY

France—Netherlands (1672-1678)

The Marines at Solebay. (Ftg Forc—Dec 1934)

18th CENTURY

War of Spanish Succession (1702-1714)

Prince Eugene of Savoy, 1633-1736. (Es e Naz—Aug-Sep 1934)

War of Austrian Succession (1740-1748)

The Royal Macedonian Regiment at the battle of Velletri, 10 August 1744. (Es e Naz—Aug-Sep 1934)

Seven Years' War (1756-1763)

British strategy and battles in the Westphalian Campaigns of 1758-1762. (Jour RUSI—Nov 1934)

Herzog Ferdinand von Braunschweig, the conqueror at Krefeld and Minden. (Ws & Wr—Jul 1934)

NAPOLEONIC WARS (1795-1815)

Lessons from Napoleon—3. Friedland. (Mil Eng—Jan-Feb 1935)

The hundred days. [See Section 6.]

FRANCE-GERMANY (1870-1871)

Extracts from "The Conduct of War."—VII. Gravelotte. The fight for the Verdun Road. (Jour R Art—Jan 1935)

MEXICO

REVOLUTION AND INDEPENDENCE (1810-1822)

A critical study of the siege of Cuautla. (Rev Ej Mar—Aug 1934)

SOUTH AMERICA

CHACO WAR (1932-1934)

Tanks in the Gran Chaco. (A Ord—Nov-Dec 1934)

The Chaco War up to the present. (Mil-Woch—11 Sep 1934)

The Chaco War according to French views. (Mil-Woch—11 Oct 1934)

Equipment and clothing in the Chaco War. (Mil-Woch—4 Nov 1934)

The arms used during the Chaco War. (Mil-Woch—18 Nov 1934)

Tactical lessons from the Chaco War. (Mil-Woch—25 Nov 1934)

The Chaco War. (AN&AF Gaz—27 Dec 1934)

UNITED STATES

REVOLUTION (1775-1783)

D'Estaing's fleet revealed. (Nav Inst Proc—Feb 1935)

MEXICAN WAR (1845-1848)

Journal of a soldier under Kearny and Doniphan, 1846-1847. [See Section 6.]

CIVIL WAR (1861-1865)

The signpost that was missed. (Inf Jour—Nov-Dec 1934)

A study of mobility in the American Civil War. (A Quar—Jan 1935)

Robert E. Lee. (AN&AF Gaz—8 Nov 1934)

America's greatest soldier. (AN&AF Gaz—3 Jan 1935)

R. E. Lee. [See Section 6.]

WARS-WW—H

PHILIPPINE INSURRECTION (1899-1902)

The death of Lawton—A reminiscence. (Inf Jour—Nov-Dec 1934)

WORLD WAR (1914-1918)

C—Socio-Economic History

Government and high command in France during the War. (Mil-Woch—18 Nov 1934)

E—General Military History

History of the Belgian Army in the World War.

—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)

Military operations on the eastern frontier of the Belgian Congo during the World War. (Bul Belge Mil—Jul 1934)

History of the Belgian Army in the World War.

—The attack on the machine-gun nest at Craonne Farm in August 1918, by the 1st Battalion, 4th Line Regiment. (Bul Belge Mil—Aug 1934)

History of the Belgian Army in the World War.

—The battle of Budingen, 18 August 1914. (Bul Belge Mil—Sep 1934)

The French armies in the World War, Tome V, Volume I. (Bul Belge Mil—Sep 1934)

The influence of sea power on the World War. (Mil Mitt—Jul 1934)

Twenty years ago. (Mil Mitt—Aug 1934)

Patrol "Nobiling." (Pion—Aug 1934)

Marshal Lyautey. (Rv de Cav—Sep-Oct 1934)

Note book of a combatant. (Rv d'Inf—Jul, Sep 1934)

The withdrawal of the German Army of Occupation from the Ukraine, 1918-19. (Ws & W—Jul 1934)

The conflicts on the Lower Rhine and on the Ruhr incident to the Kapp Rebellion. (Ws & W—Aug 1934)

Albert I in 1914. (Rv Mil Fran—Aug 1934)

Twenty years ago. Silesian Reserve Corps, 1914. (Mil-Woch—25 Nov 1934)

The French official history. March-April, 1918. (A Quar—Jan 1935)

From the Marne to the Aisne. (A Quar—Jan 1935)

Caporetto. Comments of an Italian Marshal. (A Quar—Jan 1935)

General Sir John French on September 4th. (AN&AF Gaz—6 Dec 1934)

Fabulous monster. [See Section 6.]

Rumania in the World War (1916-1919). [See Section 6.]

A history of the World War 1914-1918. [See Section 6.]

Jacka's mob. [See Section 6.]

F—Zone of the Interior

How industry armed for defense. (A Ord—Nov-Dec 1934)

G—Arms and Services

AIR ARM

Air reconnaissance in open warfare. (Jour RUSI—Nov 1934)

The air service and the antiaircraft service in 1918. (Rv l'Air—Jul 1934)

British aviation during the War. (Mil-Woch—25 Nov 1934)

ARTILLERY

The battle of Buzancy. (FA Jour—Nov-Dec 1934, Jan-Feb 1935)

Influence of industrial production on military operations. (FA Jour—Nov-Dec 1934)

The siege of Tsingtau. (CA Jour—Nov-Dec 1934)

A study of artillery densities in the French offensives of 1918. (Rv d'Art—Jul 1934)

Employment of artillery. (Riv Art e Gen—Jun 1934)

Artillery strengths of the French offensives of 1918. (FA Jour—Jan-Feb 1935)

August 1914. (Jour R Art—Jan 1935)

CAVALRY

Lessons from the Marne. (Ftg Forc—Dec 1934)

The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1935)

History of the Belgian Army in the World War.

—The battle of Budingen, 18 August 1914. (Bul Belge Mil—Sep 1934)

Lost opportunities. (Rv de Cav—Sep-Oct 1934)

The German cavalry in Poland in 1914-15. (Mil-Woch—4 Nov 1934)

The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)

CHEMICAL WARFARE SERVICE

Chemical troops in the World War. (Pion—Aug 1934)

ENGINEERS

History of the Belgian Army in the World War.

—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)

The crossing of the San in May 1915. (Mil Mitt—Sep 1934)

The Belgian flood of 1914. (Pion—Aug 1934)

Engineers in localized combat in 1914. (Pion—Aug 1934)

Patrol "Nobiling." (Pion—Aug 1934)

INFANTRY

Will it happen again? (CA Jour—Nov-Dec 1934, Jan-Feb 1935)

The 52d Infantry Regiment in the Battle of Stanislaw, 6-8 July 1917. (Mil Mitt—Jul, Aug 1934)

The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)

MACHINE GUNS

History of the Belgian Army in the World War.

—The attack on the machine-gun nest at Craonne Farm in August 1918, by the 1st Battalion, 4th Line Regiment. (Bul Belge Mil—Aug 1934)

ORDNANCE

A chronicle of ordnance. (A Ord—Nov-Dec 1934)

QUARTERMASTER SERVICE

Supply at the Dardanelles. (QM Rev—Nov-Dec 1934)

SIGNAL SERVICE

The contribution of the Cryptographic Bureaus in the World War. (SC Bul—Nov-Dec 1934)

TANKS

Passchendaele. (Ftg Forc—Dec 1934)

With the tanks at Passchendaele. (Roy Tk C Jour—Dec 1934)

The battle of Villers-Cotterets. (Inf Jour—Jan-Feb 1935)

The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)

H—Military Conduct of the War in the Field

Lessons from the Marne. (Ftg Forc—Dec 1934)

Passchendaele. (Ftg Forc—Dec 1934)

Influence of industrial production on military operations. (FA Jour—Nov-Dec 1934)

Supply at the Dardanelles. (QM Rev—Nov-Dec 1934)

Will it happen again? CA Jour—Nov-Dec 1934, Jan-Feb 1935

Air reconnaissance in open warfare. (Jour RUSI—Nov 1934)

Verdun in September 1914. [See Section 2.]

The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1935)

History of the Belgian Army in the World War.—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)

The 52d Infantry Regiment in the Battle of Stanislaw, 6-8 July 1917. (Mil Mitt—Jul, Aug 1934)

The Belgian flood of 1914. (Pion—Aug 1934)

Engineers in localized combat in 1914. (Pion—Aug 1934)

A study of artillery densities in the French offensives of 1918. (Rv d'Art—Jul 1934)

Antiaircraft defense of the Army of the Orient. (Rv d'Art—Sep 1934)

A study of flanking actions. (Rv d'Inf—Aug 1934)

The Fifth Army on 21 August 1914: Charleroi. (Rv d'Inf—Sep 1934)

Peace training and war experience. (Wr & Wf—Aug 1934)

Critical observation of the battle of the Marne. (Ws & Wr—Jul 1934)

Field Marshal Helmuth v. Moltke's influence on the General Staff considering the World War. (Ws & Wr—Sep 1934)

The battle of Galicia. (Rv Mil Fran—Aug, Sep 1934)

General Botha's action in Southwest Africa in 1914. (Mil-Woch—25 Sep 1934)

How did the Marne withdrawal of 1914 affect the French troops? (Mil-Woch—11 Oct 1934)

Twenty years ago. In front of Paris, 1914. (Mil-Woch—18 Oct 1934)

Twenty years ago. The Vistula operations in October 1914. (Mil-Woch—25 Oct 1934)

Artillery strengths of the French offensives of 1918. (FA Jour—Jan-Feb 1935)

The battle of Villers-Cotterets. (Inf Jour—Jan-Feb 1935)

August 1914. (Jour R Art—Jan 1935)

The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)

What the Allies knew of the German military plan before the outbreak of the Great War. (A Quar—Jan 1935)

"The other side of the hill." No. XIV. The fight for Inverness Copse: 22nd-24th of August, 1917. (A Quar—Jan 1935)

The Moroccan Division to Marais de Saint-Gond (5-10 September 1914). [See Section 6.]

J—Campaigns and Battles

AFRICAN AREA

The operations on Lake Tanganyika in 1915. (Jour RUSI—Nov 1934)

Military operations on the eastern frontier of the Belgian Congo during the World War. (Bul Belge Mil—Jul 1934)

General Botha's action in Southwest Africa in 1914. (Mil-Woch—25 Sep 1934)

ASIATIC AREA—CHINESE THEATER

The siege of Tsingtau. (CA Jour—Nov-Dec 1934)

ASIATIC AREA—TURKISH THEATER

The campaign in the Hejaz. (AN&AF Gaz—29 Nov, 6, 13 Dec 1934)

Dardanelles (Gallipoli) Front

Supply at the Dardanelles. (QM Rev—Nov-Dec 1934)

Failure at Gallipoli. (Nav Inst Proc—Feb 1935)

Mesopotamian Front

Two lectures on the Mesopotamia Campaign. 6th November, 1914, to capture of Kut-al-Amara on 29 September, 1915. (Jour USII—Oct 1934)

EUROPEAN AREA—BALKAN THEATER

Grecian Front

Antiaircraft defense of the Army of the Orient. (Rv d'Art—Sep 1934)

EUROPEAN AREA—ITALIAN THEATER

Caporetto. Comments of an Italian Marshal. (A Quar—Jan 1935)

EUROPEAN AREA—RUSSIAN THEATER

The 52d Infantry Regiment in the Battle of Stanislaw, 6-8 July 1917. (Mil Mitt—Jul, Aug 1934)

The crossing of the San in May 1915. (Mil Mitt—Sep 1934)

The withdrawal of the German Army of Occupation from the Ukraine, 1918-19. (Ws & Wr—Jul 1934)

The battle of Galicia. (Rv Mil Fran—Aug, Sep 1934)

Twenty years ago. The Vistula operation in October 1914. (Mil-Woch—25 Oct 1934)

The German cavalry in Poland in 1914-15. (Mil-Woch—4 Nov 1934)

Twenty years ago. Thoughts about the battle of Lodz. (Mil-Woch—18 Nov 1934)

Twenty years ago. Silesian Reserve Corps, 1914. (Mil-Woch—25 Nov 1934)

Military operations in Daghestan, 1917-1921. (A Quar—Jan 1935)

A campaign of hardships. Siberia, 1919. [See Section 6.]

EUROPEAN AREA—WESTERN THEATER

1914

Lessons from the Marne. (Ftg Forc—Dec 1934)

Air reconnaissance in open warfare. (Jour RUSI—Nov 1934)

Verdun in September 1914. [See Section 2.]

History of the Belgian Army in the World War.—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)

History of the Belgian Army in the World War.—The battle of Budingen, 18 August 1914. (Bul Belge Mil—Sep 1934)

The Belgian flood of 1914. (Pion—Aug 1934)

Engineers in localized combat in 1914. (Pion—Aug 1934)

Lost opportunities. (Rv de Cav—Sep-Oct 1934)

The defense of the Chateau-Thierry bridges, 2 September 1914. (Rv d'Inf—Jul 1934)

The German 14th Division at Saint Gond, 8 September 1914. (Rv d'Inf—Aug 1934)

The Fifth Army on 21 August 1914: Charleroi. (Rv d'Inf—Sep 1934)

Critical observation of the battle of the Marne. (Ws & Wr—Jul 1934)

Albert I in 1914. (Rv Mil Fran—Aug 1934)

How did the Marne withdrawal of 1914 affect the French troops? (Mil-Woch—11 Oct 1934)

Twenty years ago. In front of Paris, 1914. (Mil-Woch—18 Oct 1934)

Twenty years ago. The fight at the west flank of the army and the race to the sea in 1914. (Mil-Woch—4, 11 Nov 1934)

August 1914. (Jour R Art—Jan 1935)

From the Marne to the Aisne. (A Quar—Jan 1935)

General Sir John French on September 4th. (AN&AF Gaz—6 Dec 1934)

The French view of September 4th, 1914. (AN&AF Gaz—20 Dec 1934)

WARS-WW—L—YUGO

German retreat of September 7, 1914. (AN&AF Gaz—3 Jan 1935)

The Moroccan Division to Marais de Saint-Gond (5-10 September 1914). [See Section 6.]

1915

Chemical troops in the World War. (Pion—Aug 1934)

1916

A study of flanking actions. (Rv d'Inf—Aug 1934)

Verdun. The first shock of the German attack. [See Section 6.]

1917

Passchendaele. (Ftg Forc—Dec 1934)

Will it happen again? (CA Jour—Nov-Dec 1934, Jan-Feb 1935)

With the tanks at Passchendaele. (Roy Tk C Jour—Dec 1934)

The cooperation of tanks with the other arms at the Battle of Cambrai, November, 1917. (A Quar—Jan 1935)

"The other side of the hill." No. XIV. The fight for Inverness Copse: 22nd-24th of August, 1917. (A Quar—Jan 1935)

1918

The battle of Buzancy. (FA Jour—Nov-Dec 1934, Jan-Feb 1935)

The cavalry in France, August-November, 1918. (Cav Jour [GB]—Jan 1935)

History of the Belgian Army in the World War.

—The attack on the machine-gun nest at Craonne Farm in August 1918, by the 1st Battalion, 4th Line Regiment. (Bul Belge Mil—Aug 1934)

A study of artillery densities in the French offensives of 1918. (Rv d'Art—Jul 1934)

A study of flanking actions. (Rv d'Inf—Aug 1934)

Artillery strengths of the French offensives of 1918. (FA Jour—Jan-Feb 1935)

The battle of Villers-Cotterets. (Inf Jour—Jan-Feb 1935)

The French official history. March-April, 1918. (A Quar—Jan 1935)

L—Naval History

The siege of Tsingtau. (CA Jour—Nov-Dec 1934)

The principal problems in organizing and conducting joint operations of the Army and Navy. (CA Jour—Nov-Dec 1934)

The operations on Lake Tanganyika in 1915. (Jour RUSI—Nov 1934)

Mistaken attacks in the World War.] (Nav Inst Proc—Dec 1934)

Proposed landing operation. (MC Gaz—Nov 1934)

Failure at Gallipoli. (Nav Inst Proc—Feb 1935)

The influence of sea power on the World War. (Mil Mitt—Jul 1934)

WEAPONS

Smoke. (Jour USII—Oct 1934)

War à la carte. (MC Gaz—Nov 1934)

Tanks and antitank weapons. [See Section 2.]

Roving guns. (Rv d'Art—Sep 1934, & Jour R Art—Jan 1935)

Attacks of low-flying planes and defense against them. (Wr & Wf—Sep 1934)

"What effect are modern developments in aviation, armoured and mechanical vehicles, and automatic weapons, likely to have on the tactical employment of artillery . . . ?" (Jour R Art—Jan 1935)

WILHELM II, Emperor of Germany (1859-)

Fabulous monster. [See Section 6.]

WITHDRAWAL

Modern cavalry: Missions of army cavalry. (Cav Jour—Nov-Dec 1934)

Supplies and the division in a withdrawal. (RASC Quar—Nov 1934)

History of the Belgian Army in the World War.

—The Cyclist Pioneer Company at the second withdrawal from Antwerp in September 1914. (Bul Belge Mil—Jul 1934)

Map problem: railroad engineers. The battalion of railroad engineers in the retirement.

A solution. (Rv Gen Mil—Sep-Oct 1934)

Critical observation of the battle of the Marne. (Ws & Wr—Jul 1934)

How did the Marne withdrawal of 1914 affect the French troops? (Mil Woch—11 Oct 1934)

The Battery Staff T.A. (Jour R Art—Jan 1935)

German retreat of September 7, 1914. (AN&AF Gaz—3 Jan 1935)

Y

YUGOSLAVIA (ARMY OF)

Further progress in the field of motorization and mechanization in foreign armies. (Sanct Chris—Aug 1934)

Austria's armed forces and those of her neighbors. (AN&AG Gaz—22 Nov 1934)